TENTATIVE MANUAL

VP-5730P

SERVICE MANUAL

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1. CIRCUIT DESCRIPTION

1.1 VERTICAL AXIS

1.1.1 Vertical preamplifier

The channel 1 and 2 attenuators are identical. In the following, the channel 1 attenuator circuit is described (Fig. 1-1). The attenuator circuit permits selection of the input coupling and the vertical deflection coefficient. Input signals for vertical deflection can be applied to the channel 1 or channel 2 input connector or to both of them. In the X-Y mode, the signal applied to the channel 1 connector provides for horizontal (X) deflection and the signal applied to the channel 2 connector for vertical (Y) deflection.

Input coupling

Signals applied to the channel 1 input connector are routed via resistor RIA to the input coupling switch SIA. When SIA is set for DC coupling, the signal is applied directly to the input attenuator. When AC-coupled, the signal is routed via C3A which blocks the DC component. In the GND position, the signal path is interrupted and the input of the vertical attenuator is taken to ground. This position is used for adjusting the vertical zero of the trace without the need of disconnecting the input signal.

Input attenuator (1)

The first section of the attenuator switch S10A directs the input signal to one of 3 paths: directly through-connected (x1, without attenuation), divided by 10 or divided by 100.

Input attenuator (2)

The second section of the attenuator switch S10A directs the input signal to one of 3 paths: directly through-connected (x1, without attenuation), divided by 2 or divided by 5.

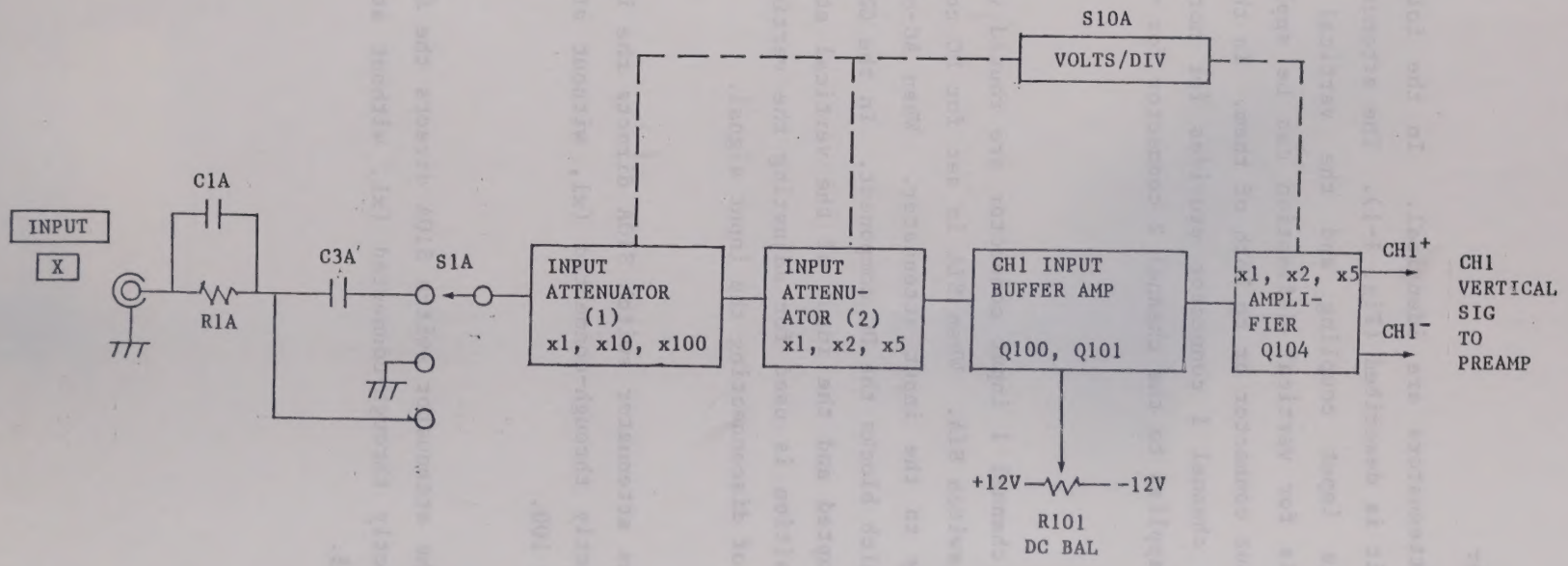

Fig. 1-1 Detailed block diagram of CH1 attenuator

Buffer amplifier

The buffer amplifier has a high impedance input with low parallel capacitance in order to load the signal source as little as possible whereas the output is low impedance.

The DC balance control R101 is set such that the vertical position of the trace is not shifted when switching between 2 mV/div and 10 mV/div.

First cascode amplifer

The first cascode amplifer in the channel 1 preamplifer circuit consists of the discrete components Q104, Q106 and Q107. The stage contains gain adjustment (R116) for the range of 2 mV/div. The amplifier gain increases by 6 dB for the 5 mV/div range and 14 dB for the 2 mV/div range.

The VARIABLE control which is coaxial with S10A permits uncalibrated setting of the deflection coefficients between the steps of the VOLT/DIV switch by attenuating the voltage between the emitters of transistors Q106 and Q107.

The channel 1 variable balance control R134 is set such that the vertical position of the trace is not shifted when VARIABLE control is rotated.

The UNCAL LED lights up when the VARIABLE control is not at the CAL position.

Second cascode amplifer

The second cascade amplifier in the channel 1 preamplifier is a hybrid IC (U112).

The stage contains gain adjustment (R146) for the range of 10 mV/div determining the overall gain of the channel 1 preamplifier.

CH2 vertical preamplifer

The channel 2 vertical preamplifier functions in the same way as the channel 1 vertical preamplifier previously described. The channel 2 second cascade amplifier is also a hybrid IC (U212) but contains cross-wired transistors, which output signals with the phase reversed from the normal mode.

1.1.2 Pickoff amplifier for internal trigger signal

The trigger pickoff amplifier supplies signals to the trigger amplifier. U170 for channel 1 and V270 for channel 2 are hybrid ICs which receive the

signal from the vertical preamplifier. Selecting channel 1 as the trigger source changes T1 to low level, applying the U170 output to the bases of the transistors Q302 and Q304.

Similarly, selecting channel 2 as the trigger source changes T2 to low level, applying the V270 output to the bases of the transistors Q302 and Q304.

When NORMAL is selected, the outputs of both V170 and V270 are applied to the base of the transistors Q302 and Q304. Since the current passing through the resistors R350 and R351 is doubled, the direct current voltage is corrected by setting T3 to low level.

1.1.3 Vertical switching

Diode switches

The channel 1 diode switch consists of CR110, CR111, CR112 and CR113. The switch is controlled by the switching flip-flops. The channel diode switch is identical in operation.

The vertical switching circuit determines whether signals from the channel 1 or channel 2 preamplifier or from both preamplifiers are applied to the vertical output amplifier. In the DUAL mode, 2 channels are alternately displayed.

In the X-Y mode, the vertical switching circuit also applies the X signal to the horizontal amplifier and furnishes the blanking signal for the Z-axis in the CHOP mode.

Switching flip-flops

The switching flip-flops are master-slave flip-flops (U410). They deliver the switching signals for the diode switches. In the CH1, CH2 and ADD positions of the vertical MODE switch, the logic output signal of U410 is determined by the voltage at the CLEAR or PRESET inputs. In the ALT mode, the flip-flops are switched by the sync pulse for alternate deflection which is applied to the CLOCK inputs via U412 and Q407.

In the CHOP mode, U419 produces the CLOCK pulses and switches the flips-flops (Fig. 1-2).

U412 is an astable multivibrator operating at 1 MHz. The rectangular output signal (pin 11) is routed to the switching flip-flops via the HAND gate (pins 13 and 11). In the CHOP Mode only, a high signal is present at pin 1 of J400 enabling the astable multivibrator.

The blanking amplifier Q402 delivers pulses to the Z-axis amplifier blanking out the deflection transistors in the CHOP mode.

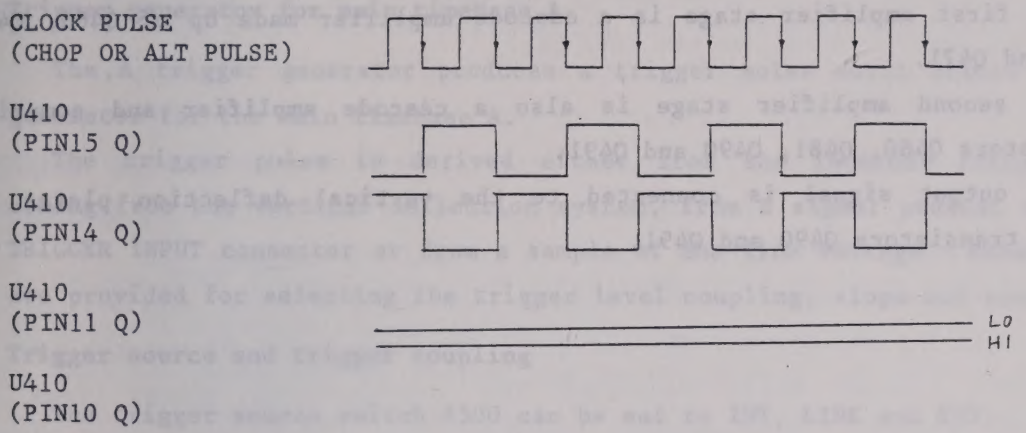

Fig. 1-2 Timing sequence of DUAL Mode

Delay line driver

The delay line driver converts the current from the diode switches into a voltage signal for application to the delay line.

The driver is a differential feedback amplifier consisting of U301.

The delay line W450 provides a delay of about 120 ns for the vertical signal.

When using internal triggering, the delay time allows the sweep generator sufficient time to start the deflection before the vertical signal reaches the CRT deflection plates. This permits viewing the leading edge of the internal signal originating from the trigger.

Storage pickoff amplifier

In storage operation, the signal from the vertical amplifier passes through the storage pick-off amplifiers (Q1600, Q1601, Q1611, and Q1612) to the digital storage section. The signal from the digital storage section then returns to the diode switching circuit via the resistors R373 and R374.

1.1.4 Vertical output amplifier

The vertical output amplifier amplifies the vertical signal and applies it to the CRT deflection plates.

The signals from the delay line are taken to a differential amplifier input stage composed of transistors Q460 and Q461. Resistors R450 and R451 match-terminate the delay line.

The first amplifier stage is a cascode amplifier made up of Q460, Q461, Q470 and Q471.

The second amplifier stage is also a cascode amplifier and comprises transistors Q480, Q481, Q490 and Q491.

The output signal is connected to the vertical deflection plates via buffer transistors Q490 and Q491.

1.2 HORIZONTAL AXIS

1.2.1 Trigger amplifier

Trigger generator for main timebase A

The A trigger generator produces a trigger pulse which starts the sweep generator for the main timebase A.

The trigger pulse is derived either from the internal trigger signal coming from the vertical deflection system, from a signal present at the EXT TRIGGER INPUT connector or from a sample of the line voltage. Panel controls are provided for selecting the trigger level coupling, slope and source.

Trigger source and trigger coupling

The trigger source switch S500 can be set to INT, LINE and EXT.

Emitter follower Q500 isolates the input of the A trigger circuit from the output of the vertical switching circuit.

In the LINE Mode, the line frequency is obtained from the secondary of the power transformer feeding the low voltage power supply.

The trigger coupling switch permits selection or rejection of certain components of the trigger signal.

Trigger input amplifier

The trigger input amplifier consists of a source follower and a paraphase amplifier.

The FET source follower provides a high input impedance for the trigger signal.

The paraphase amplifier is a hybrid IC (U515).

The A TRIG CENTER control sets the level such that triggering is correct when the LEVEL control is at mid-position.

Turning the slope switch S512B to the "+" position connects the paraphase amplifier output to the emitter-follower Q507 via the capacitor CR512; the other position ("-") connects Q507 via the capacitor CR511.

Auto fix

The auto fix circuit consists of Q507 and Q508. Turning the slope switch S512A to the "FIX" position puts the Q508 emitter voltage at the threshold level of Schmidt trigger IC (U600). The peak level of the minus side trigger signal is automatically fixed to match the amplitude.

Trigger generator for delayed timebase B

The B trigger generator produces the trigger pulses which start the delayed timebase B. It functions in the same way as the A trigger generator described above (except for the auto fix).

TV sync separator

The TV synchronizing separation circuit is located on the interface printed circuit board. Turning the trigger amplifier switch S501 to the "TV" position applies the composite signal to the emitter-follower Q1.

The horizontal synchronizing signal separation circuit consists of the transistors Q1, Q2, Q3, Q4, Q5, and Q10. The transistors Q2 and Q10 form the comparator circuit which separates the synchronizing signal from the composite signal. The vertical synchronizing signal separation circuit consists of the ICs U2 and U3. The IC U3 is a single-shot multivibrator which removes the horizontal component from the synchronizing signal, leaving the vertical component.

In the TV trigger coupling mode, the field sync pulses are routed to the A trigger generator and the line sync pulses to the B trigger generator.

1.2.2 Sweep generator

Sweep generator for main timebase A

The sweep generator and the logic circuit produce a sawtooth voltage which is amplified by the horizontal amplifier to provide horizontal sweeping. The sawtooth voltage is produced on command from the sweep logic circuit.

The sweep logic circuit determines the holdoff time, starts the sweep upon reception of a trigger signal and terminates the sweep at the proper sweep leve.

In the AUTO trigger mode, the sweep logic circuit ensures free-run of the sweep generator thus producing a reference line if a trigger signal is not received within a predetermined period.

The sweep is produced by an integrator circuit (using a constant-current source) consisting of Q600, Q601, U615, Q602 and the associated timing components. Q602 holds the charging current for the timing capacitor at a constant value.

If a capacitor is charged in this way, the voltage rise across the capacitor is linear rather than exponential.

Before a sweep starts, pin 6 of U601 is high. The voltage across the selected timing capacitor is 0 V. If pin 6 of U601 goes low, the capacitor is charged via Q602 and the selected timing resistor to start the sweep. As Q602 provides a constant-current source, the voltage waveform produced across the capacitor is a linear function of time. When the deflection voltage has reached about +7 V, the end-of-sweep comparator (Q604) is enabled and the sweep logic circuit is reset.

Sweep logic

In the NORM trigger mode, the sweep ramp waveform is applied to the base of Q604 via a voltage divider (Fig. 1-3).

When the sweep voltage reaches the threshold level of Q604, the collector of Q604 goes low and this low signal is applied to U603, pin 9, and U601, pin 1. This causes pin 6 of U601 to go high. A high signal arriving at the bases of Q601 via CR616 speeds up the change of state of Q601. In this way the switching action of Q601 is reinforced; the sweep voltage drops rapidly and remains 0 V until pin 6 of U601 also goes low. At this point, the sweep generator is ready to start another sweep.

When the low signal from the collector of Q604 is applied to pin 9 of the monostable U603, the holdoff period starts. The $\bar{Q}$ output of U603 goes low and remains at this state for the length of time determined by the RC timing components between pins 6 and 7 of U603. The holdoff time can be varied with the HOLDOFF control R612. During holdoff, U601 will not respond to trigger signals since the clear input of U601 (pin 1) is low.

At the end of the holdoff time, the $\bar{Q}$ output of U603 goes high and thus also the clear input of U601 (pin 1) via CR612.

Now flip-flop U601 can respond again to the next trigger signal from U600, pin 6. When the next trigger signal arrives at the clock input of U601, pin 6 of U601 goes low. This low signal is routed via CR616 to the base of Q601 thus causing the sweep to start.

In the AUTO Mode, pin 5 of U602 goes high if a trigger signal is not received by the edge-triggered flip-flop U601 within about 50 ms. This starts the sweep at the endo f the holdoff time. The sweep is thus allowed to free-run and a reference trace is displayed on the CRT.

If suitable trigger signals are being received by U601, the output of U601 (pin 6) goes low and the clear input of U602 (pin 10) goes low as well as the Q output of U602).

Now the sweep generator operates in the same way as in the NORM mode (Fig. 1-4 and 1-5).

When the SINGLE button (S600) is pressed, the sweep generator is set to the single deflection mode and when the RESET button (S600) is pressed, the $\overline{Q}$ output of U602 goes low, pin 9 of U601 goes high as well as the clear input of U601 and the TRG'D/READY LED lights up.

If a trigger signal is applied to the clock input of U601, a sweep is started.

When the sweep voltage has reached about 7 V, Q604 turns on. This causes pin 12 of U603 to go low as well as pin 13 of U602 and pin 13 of U601. Since pin 9 of U601 is low, the clear input of U601 (pin 1) is low and the sweep to be stopped. All succeeding trigger pulses at the edge-triggered flip-flop U601 remain inhibited until the RESET button is pressed again.

In the storage operation, the trigger signal is transmitted from pin 5 of U601 to the digital storage section, while the sweep is suspended.

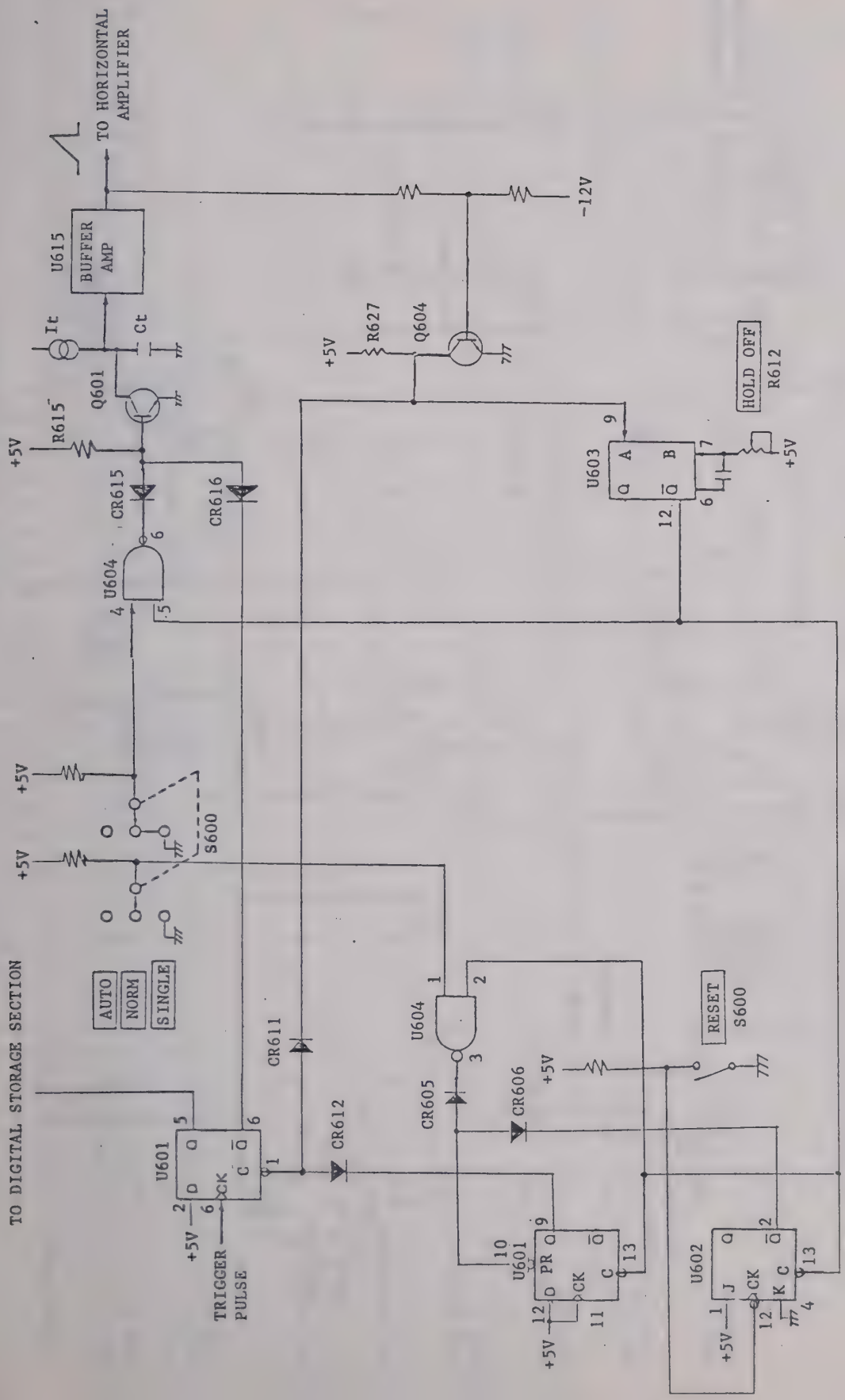

Fig. 1-3 Simplified block diagram of NORM sweep mode

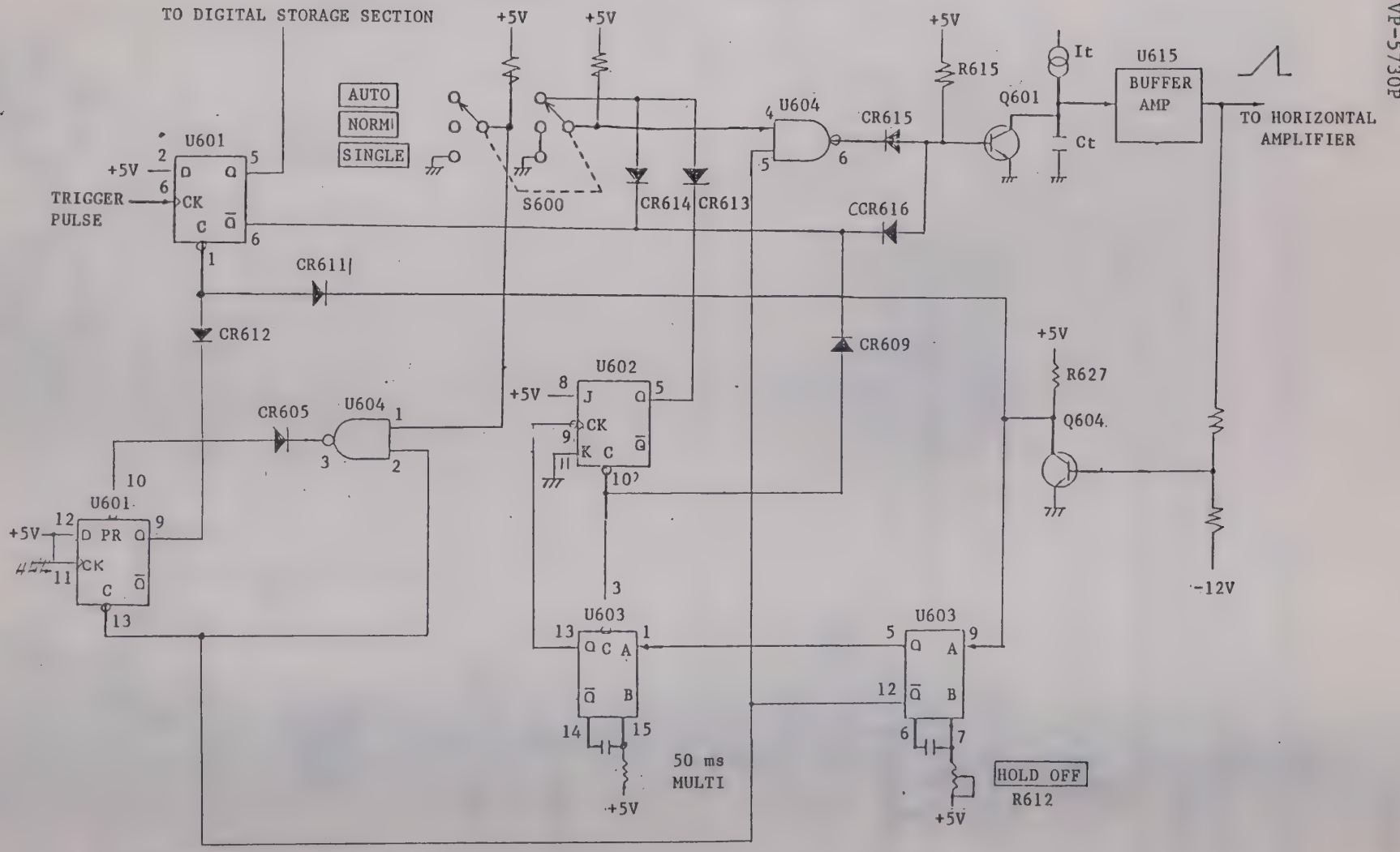

Fig. 1-4 Simplified block diagram of AUTO sweep mode

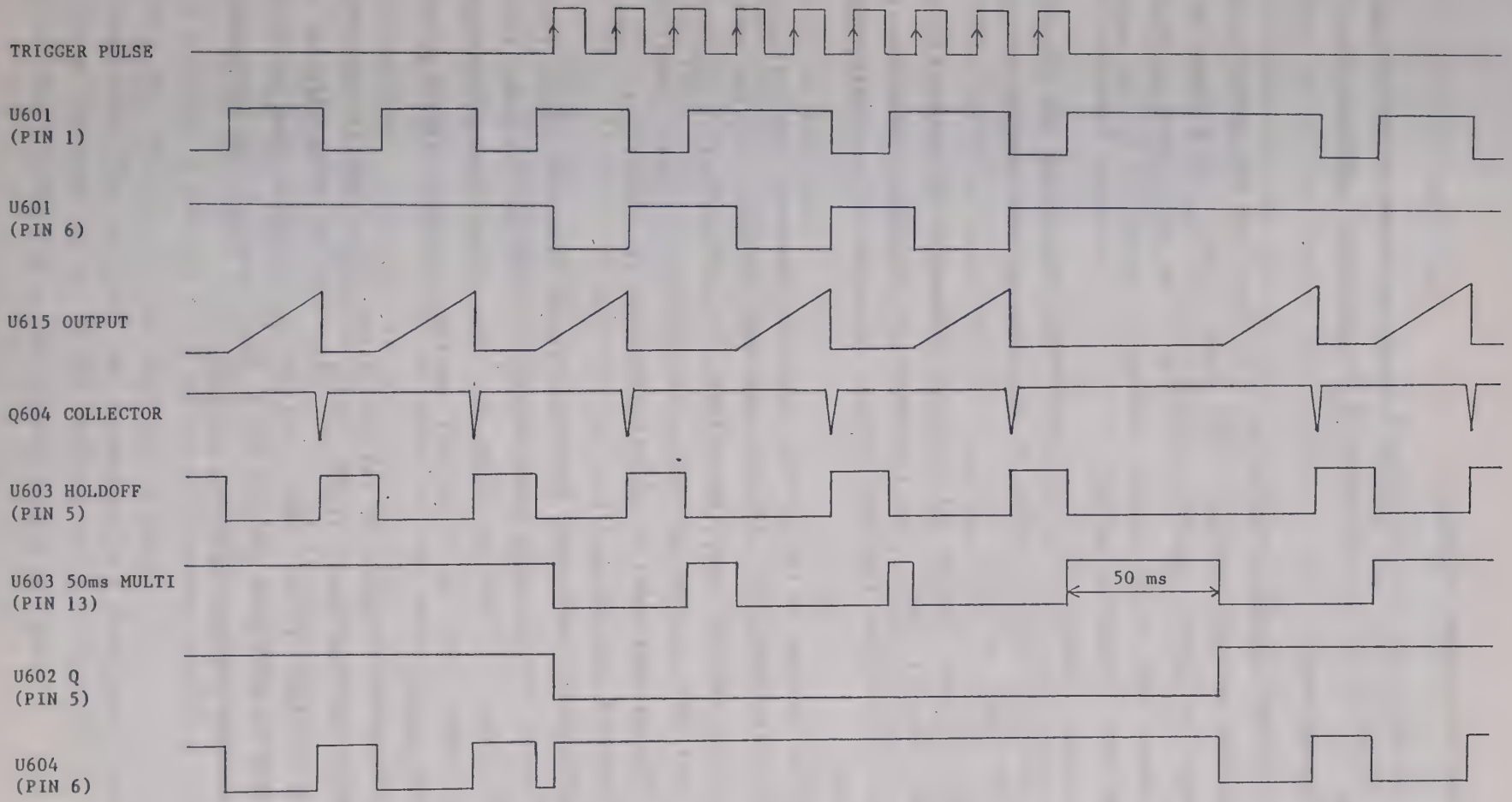

Fig. 1-5 Timing sequence of AUTO sweep mode

Sweep generator for delayed timebase B

The B sweep generator for the delayed timebase is basically the same as the A sweep generator with the exception of the circuitry described below.

Delay pickoff comparator

The delay pickoff comparator determines the delay from the start of the A sweep to the start of the B sweep. This stage permits the B sweep to be delayed between 0.3 and 10 times the setting of the MAIN SWEEP A TIME/DIV switch. The sweep rate of the delayed timebase is determined by the setting of the DELAYED SWEEP B TIME/DIV switch.

In the position A INTEN or B of the horizontal mode switch the output of the sawtooth generator U615 is taken to the delay pickoff comparator which consists of Q607, Q608 and Q648.

The reference voltage for the delay pickoff comparator is provided by the DELAY TIME MULT control R684. The instrument is calibrated such that the large divisions on the DELAY TIME MULT control correspond to horizontal divisions on the CRT.

When the output voltage of the A sweep generator increases, the voltage at the base of Q607 also increases. If it becomes more positive than the reference voltage at the base of Q608, the collector of Q607 produces a negative-going pulse. This pulse causes Q609 to turn on and Q609 produces a positive-going pulse. This delayed pulse is taken both to pin 12 of U607 and to pin 3 of U605 of the sweep B reset stage.

If the FREERUN mode is selected, the delayed pulse from Q609 causes the $\bar{Q}$ output of U605 to go low and the B sweep starts. As soon as the sweep voltage has reached about 7 V, Q614 is turned on. This causes Q605 to be reset and the B sweep stops. When pin 10 of U605 receives the next delayed pulse, the B sweep starts again.

If the mode "B can be triggered at the end of the delay time" is selected, the delayed pulse from Q609 sets flip-flop U605. Now the sweep circuit is ready to receive a trigger pulse. When a trigger pulse arrives from pin 8 of U606, the $\bar{Q}$ output of U605 goes low and the B sweep starts. The subsequent operation is basically the same as in the FREERUN mode.

1.2.3 Horizontal amplifier

The horizontal amplifier provides signals for the horizontal deflection plates of the CRT. The signal applied to the input of this amplifier is selected by the horizontal mode selector. The signal can be a sawtooth derived from the sweep generators or an external signal available via channel 1 in the X-Y mode. The horizontal amplifier also contains the × 10 magnifier and the horizontal positioning controls. Fig. 1-6 shows the block diagram of the horizontal amplifier.

Input paraphase amplifier

U811 is the input amplifier. This is an emitter-coupled stage which converts the single-ended input signal into a push-pull output signal. The horizontal position control R800 is also connected to the base of U811 (pin 2). This control varies the DC level at the base of U811 (pin 2) which in turn determines the DC level at the deflection plate and thus the horizontal trace position.

Gain setting amplifier

The push-pull output of the input amplifier is connected to the bases of Q802, Q803, Q800 and Q801. In the normal sweep mode (× 10 magnification disconnected), Q804 is conducting. Q800 and Q801 act as a differential amplifier. The NORM GAIN control R811 is set for a calibrated horizontal sweep rate. If the × 10 magnifier is connected into circuit, Q804 is inhibited. Q802 and Q803 provide for increased gain. The MAG GAIN control R813 is set for a calibrated magnified horizontal sweep rate.

Output amplifier

The push-pull signal from the gain setting amplifier is taken to the output amplifier. Each half of the output amplifier can be considered as a single-ended feedback amplifier which amplifies the signal current at the input to produce an output voltage for driving the horizontal deflection plates of the CRT. Final amplification of the horizontal deflection signal is provided by the output stage using a complementary transistor pair.

The function of the two sides of the differential amplifier is identical, therefore only one side will be described in detail.

Ttransistors Q811 and Q819 are connected in a Darlington configuration. The gain of the stage is set by the feedback resistor R838 and the adjustable capacitor C834. Q807 acts as the current source for Q809.

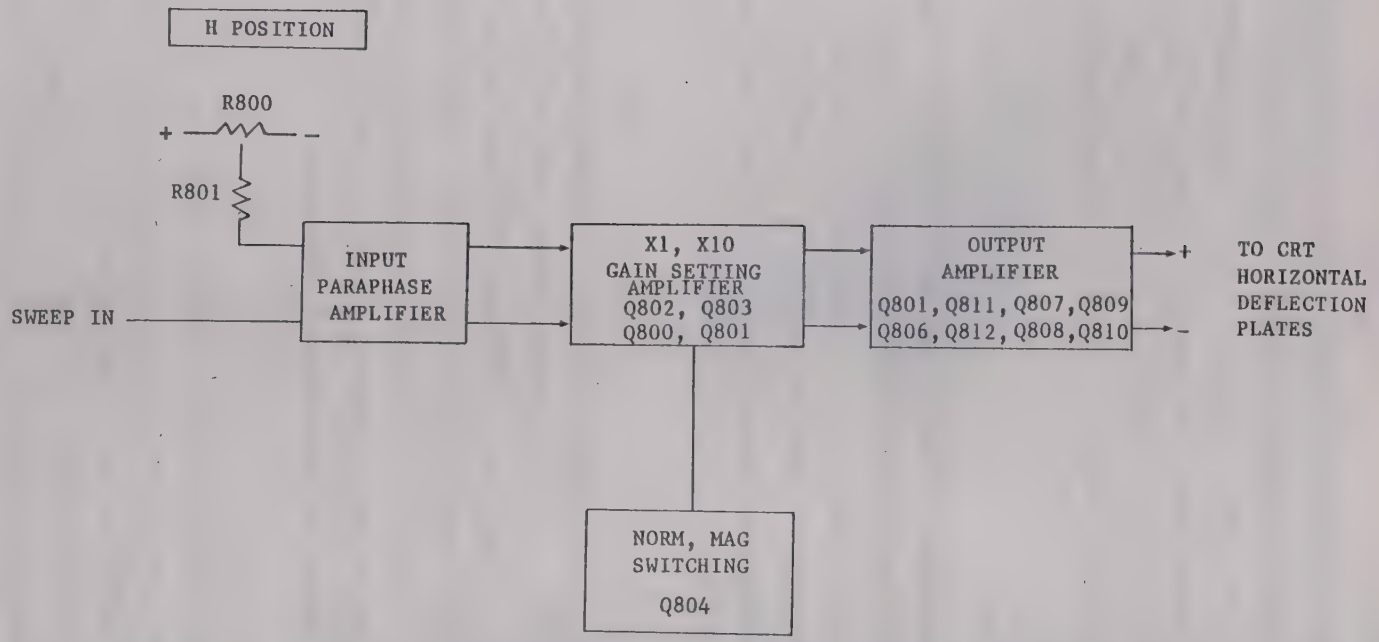

Fig. 1-6 Detailed block diagram of horizontal amplifier

1.3 CRT AND POWER SUPPLY

1.3.1 CRT section

The CRT section provides the voltages and controls necessary for operation of the CRT. Fig. 1-7 shows the block diagram of the CRT section.

CRT controls

The focus is set with the FOCUS control R913. The astigmatism control R924 varies the positive voltage at the astigmatism grid. In conjunction with the FOCUS control it provides for welldefined signal display.

The TRACE ROTATION control R920 determines the current flowing through L901 and affects both the horizontal and the vertical rotation of the beam.

Z-axis amplifier

The Z-axis amplifier determines the trace intensity by way of several input signals. These input signals either increase or decrease the trace intensity or blank the trace completely.

The input transistor Q930 is a current-controlled low impedance amplifier. It acts as a buffer amplifier for the input signals and the subsequent stages.

The currents from the different sources are taken to the emitter of Q930. Q931, Q932 and Q933 constitute a feedback amplifier stage. Emitter follower Q931 drives the output amplifier which consists of the complementary transistors Q932 and Q933. R947, R959, C931 and C934 determine the feedback for gain control and high frequency compensation. With fast positive-going signal peaks, Q932 causes capacitor C933 to be discharged. C933 is charged via R946. CR952 protects the Z-axis amplifier from short-duration arcing in the high voltage supply.

High voltage oscillator

Transistor Q903 and the associated components constitute the high voltage oscillator which drives the transformer T901. When the instrument is powered up, the current passing through Q901 causes transistor Q903 to conduct. The collector current increases, thus producing a voltage across the collector winding of T901. This produces a corresponding voltage increase in the feedback winding of T901 which is connected to the base of Q903 conducts even harder. If the collector current increase of Q903 becomes lower than

required to maintain the voltage across the collector winding, the output voltage breaks down. Q903 is then inhibited by the feedback voltage at the base. The voltage waveform at the collector of Q903 is a sinewave at the resonant frequency of T901. This frequency is about 23 kHz.

High voltage regulator

A feedback voltage from the CRT cathode is taken via R910 to the base of Q900. Any change in the level at the base of Q900 produces an error signal at the collector of Q900 which is amplified by Q901 and applied to the base of Q903 via the feedback winding of T901. If the voltage at the CRT cathode becomes more positive, this change is applied to the base of Q900. Q900 conducts harder, which in turn causes Q901 to conduct harder. This results in a greater current flowing through the base of Q903. This causes Q903 to conduct sooner thus producing a higher voltage in the secondary of T901. This increased voltage appears as a more negative cathode voltage compensating the original positive-going change. The high voltage is thus kept relatively constant by regulating the cathode voltage.

High voltage rectifier and output

Two output windings of the high voltage transformer T901 are used to provide the negative cathode voltage and the positive acceleration voltage for the anode.

The positive acceleration voltage is provided by the high voltage cascade CR901. The regulated voltage is about +16 kV. The negative cathode voltage is derived from the rectifier diode CR910. The output voltage is -2 kV. Variations of the output voltage are monitored by the high voltage regulator and corrected.

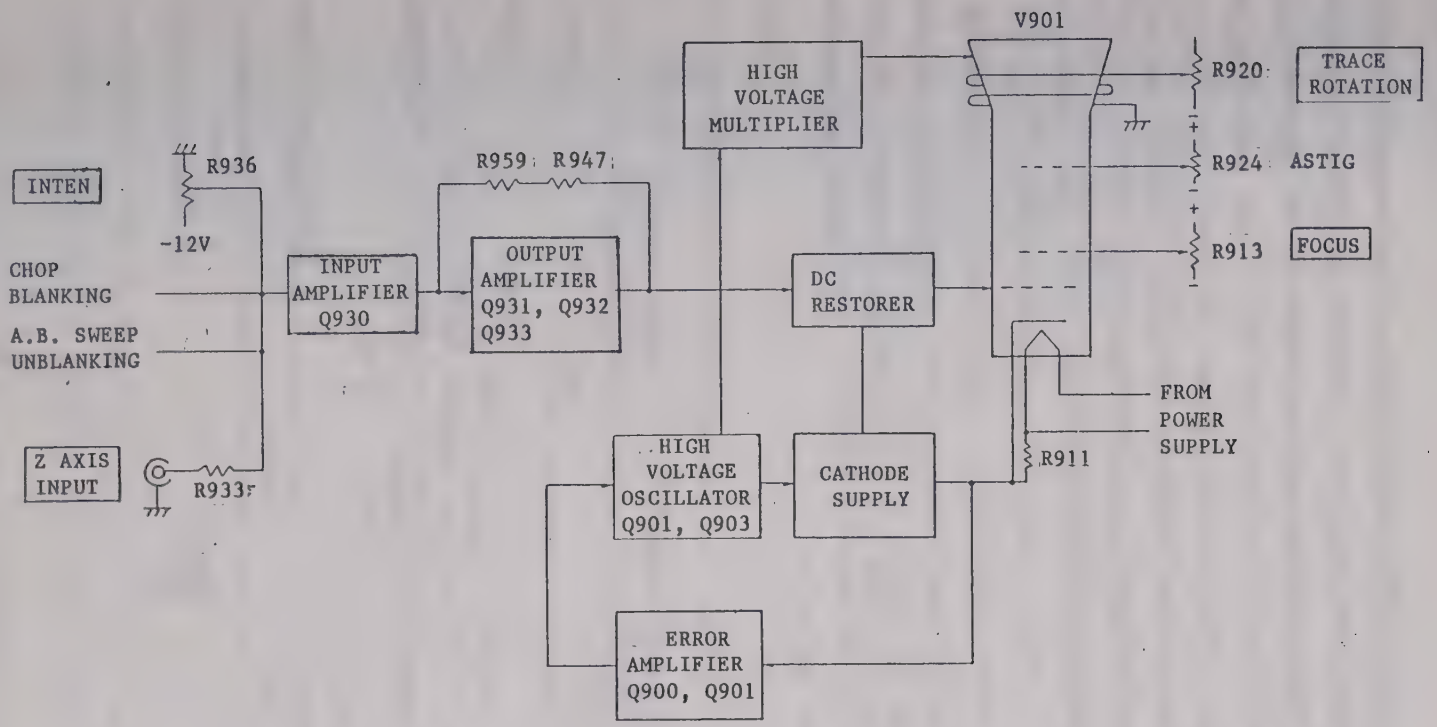

Fig. 1-7 Detailed block diagram of CRT section

DC restorer

C914, C918, CR913, CR914, CR950 and R916 form a DC restorer circuit. For the detailed block diagram see Fig. 1-8. The CRT grid bias is produced by this restorer circuit which uses part of the signal in the high-voltage winding in conjunction with the DC voltage form the Z-axis amplifier and the negative cathode voltage. This circuit allows the Z-axis amplifier to vary the intensity of the trace. The potential difference between the output of the Z-axis amplifier and the grid prevents DC coupling. The AC driving voltage for the clampling amplifier is derived from T901. The sinewave voltage is applied via R917 to CR951. The CRT bias control R950 sets the level across the cathode of zener diode VR951 to about +30 V. When the positive peaks of the AC driving voltage reach a level sufficient to forward-bias diodes CR951, the voltage is clamped to that level. The output of the Z-axis amplifier is connected to the anode of CR950. The output voltage of this amplifier is between +8 V and +65 V.

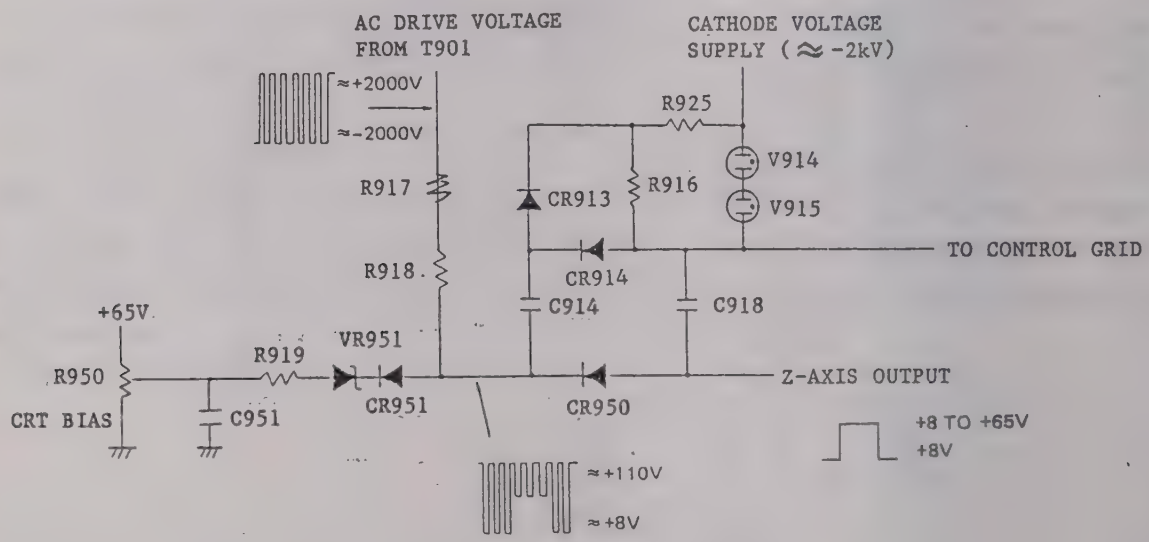

Fig. 1-8 Simplified diagram of DC restorer

1.3.2 Power supply

The AC supply voltage is taken via fuse F906, power switch S901 and the voltage selectors S902 and S903 to the primary windings of transformer T902. Fig. 1-9 shows the detailed block diagram of the power supply.

-12 V supply

The -12 V supply provides the reference voltage for the +65 V regulator. The voltage from one of the secondaries of the power transformer is rectified by a bridge rectifier CR978 and then smoothed with C987. The DC voltage is applied to series regulator U973.

+12 V supply

The DC voltage for the +12 V supply is provided by CR977 and filtered by C986. The DC signal is then taken to the voltage regulator U972 and to the high voltage oscillator.

+5 V supply

The bridge rectifier CR976 provides the rectified voltage for the +5 V supply. The voltage is filtered by C985 and routed to two separate +5 V regulators. One is located on the power supply board and the other on the analog board.

+65 V supply

The rectified and filtered voltage for the +65 V supply is derived from CR973 and C974. It is applied to a regulator located on the power supply board.

-15 V supply, unregulated

The unregulated -15 V signal is derived from the rectifier CR979 and C988.

+140 V supply, unregulated

The unregulated +140 V signal is derived from the rectifier CR972 and C990. A separate fuse F990 is provided for this voltage.

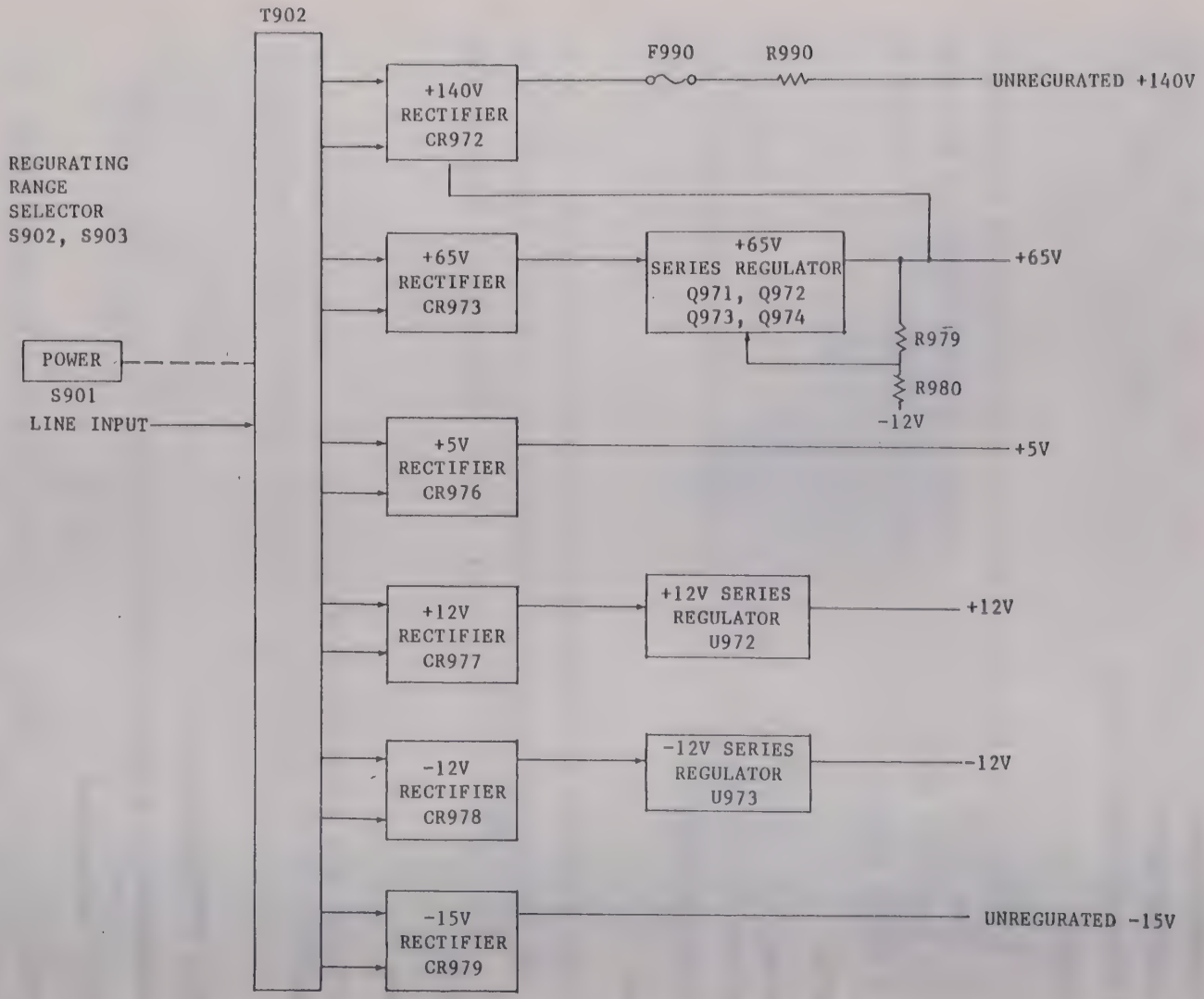

Fig. 1-9 Detailed block diagram of power supply

1.4 Digital Storage Section

1.4.1 Input port (See the circuit diagram on page 15.)

Sweep Time Switch Register

U50 on the ACQ board is the input port that employs the 3-state bus transceivers. U50 reads the range of A SWEEP TIME SW S700 when the CPU reads the address 5200H, U50-19 reaches the L level and the range code is read.

U42 is the input port of B SWEEP TIME. When the CPU reads the address 5300H, U42 reads the range of B SWEEP TIME SW S702.

ATT SW register

U34 is the input port to read the range of ATT SW's S10A and S10B. When the address 5100H is read, U34-19 reaches the L level and the range code is read.

1.4.2 Output port (See the circuit diagram on page 16)

PANEL SW1 REGISTER

U12 is the register to read the switch of STORAGE MODE CONTROL PANEL. U12-19 reaches the L level when the address 5400 is read.

PANEL SW2 REGISTER

U6 is the input port to read the switch of STORAGE MODE CONTROL PANEL. When the CPU reads the address 5500, U6 reads data.

PANEL SW3 REGISTER

Similarly, U13 is the input port to read the switch of STORAGE CONTROL PANEL. U13 reads data when the CPU reads the address 5600H.

(Output port)

PANEL LED REGISTER

U14 PANEL LED register is the output port composed of 3-state D-FFs. U14 is set when the CPU writes the address 5800H.

ROTARY ENCODER DETECTION CIRCUIT

U1, U2, U3, and U4 are the circuits to detect output from the rotary endoder (NUMBER/SHIFT) and to generate one pulse per click. U4-10 is the UP terminal and U4-13 the DOWN terminal; both terminals output the pulse width

of about 5 μ. Both terminals changes the order of pulse output when turned clockwise or counterclockwise.

CPU RESET CIRCUIT

U7, U8, and U9 are the CPU reset circuits.

U7 and U8 at the H level stop the CPU clock transmitter; U7 and U8 at the L level allow the transmitter to generate clocks.

1.4.3 PEAK DETECTION CIRCUIT (See the circuit diagram on page 17.)

The peak detection circuit is composed of U20, U26, U21, U22, U27, U28, U23, and U29. The horizontal resolution is 50 words per division. This causes sampling timing to delay if the sweep range is set delayed. However, the peak detection switch allows sampling at a constant sampling rate and allows detecting the maximum and minimum values of data acquired during the timing requested by the sweep range; these data are sequentially stored as representative data during the timing.

U20, U21, U22, and U23 are the circuits to selectively detect the minimum data among the sampled data during the timing; U26, U27, U28, and U29 are the circuits to detect the maximum value.

U36-11 and U36-4 reach the H level when the peak detection switch is turned ON, and reach the L level when the switch is OFF. The sampling clock of the AD converter is input to U37-11 and U35-3. The timing clock sequentially records data in the waveform memory; this clock is input to U36-12.

As a result, when the peak detection switch is turned OFF, the sampling clock from the AD converter is input to U23-11 and the write timing clock of the waveform memory is input to U23-1. This causes data of the U322 AD converter to be output from the output buffer after being sampled at a cycle of the timing clock.

On the other hand, U21 and U23 are the magnitute comparators. U21 and U23 compare new data with the data output from U20, the buffer storing the previous minimum data. If the new data is equal to or less than the data in U20, U21 and U23 allow U22-5 to reach the L level and pulses to be input to the output buffer U23-11, where the minimum data is collected, that is, the minimum value during the timing clock is dedected at a cycle of the write timing clock of the waveform memory before being output. U37-6 has a function to output the initial data to the comparing buffer after receiving the

timing clock and writing the minimum value during the timing clock to the waveform memory.

TRIGGER GATE

When the trigger gate is opened, the timing clock is counted. The CPU sets the data for arming (U16-14 reaches the H level) so that data are input until the TRIG WINDOW displays TRIG and the trigger gate is opened. When ACQ information is sufficiently supplied, the trigger window register outputs RC to allow U9-9 (ACQ sufficiency FF) to reach the H level, and displays the sufficiency of the ACQ information. After a little time elapses, the B SWEEP TIME SW register is referenced by the CPU and notified of the sufficiency of the ACQ information. After a little time elapses further, the CPU resets the ADC control register to detect the sufficiency of the ACQ information again by allowing U9-10 to reach the L level.

At the same time when ACQ is sufficiently supplied, the CPU turns U16-10 to 1, that is, allows U16-10 to count the time from the ^{TRIG} point to the trigger. After triggering, U16-7 reaches the L level to stop counting to determine the time until the ACQ information is triggered after sufficiency.

After triggering the TRIG WINDOW is counted. When the post trigger data are sufficiently supplied, the ACQ FF is turned to 1 and END OF ACQ is output.

U46 switches the sampling time

U44, U45, and U32 generate the timing clock to write data in the waveform memory.

1.4.4 Transmitter (See the circuit diagram on page 18.)

The transistor Q1 block is a crystal transmitter of 50 MHz; Q2 is a switch to control the transmission of the transmitter.

TRIG POINT ERROR REGISTER

While data are input to the waveform memory, the TRIG POINT ERROR REGISTER measures the time from the trigger point set by the TRIG WINDOW to the point where the data are actually triggered. This measurement offers the reference time where the waveform is reproduced at the repetitive store. U10 and U16 are so designed as to measure the time at a resolution of 10 ns.

1.4.5 Waveform Memory (See the circuit diagram on page 20.)

The waveform data are output from the digital peak detection circuit, and written in the waveform memories U29 and U30 through the connector J15. These waveform memories are occupied in the following three forms; (1) the AD conveter occupies for write, (2) the display occupies after read, and (3) the CPU occupies for write and read. For this occupation, the address selectors U28, U34, U36, and U32 switch addresses. When the AD converter writes data, the ADC address counters U25 and U50 count the timing clock. The address with a trigger point is detected by the trigger point registers U26 and U50. The display address is called when the DISP ADDRESS CK is output to U39-8 from the display address counters U7, U9, and U10.

When the CPU occupies the waveform memory, the 3-state address switch of U27 and U31 determines the address.

The sequence in which the waveform memory is used (the order in which the waveform memory is occupied by one out of the three; the AD converter, the display, and the CPU) is determined by the cycle timing generator U43.

The data bus of the waveform memories U29 and U30 are connected to the 3-state output buffers U23 and U29 in the digital peak detection circuit, as well as to the data selectors U21 and U23.

The data bus of the CPU exchanges data with the waveform memory through the 3-state DFFs of U20 and U19 and through the data selector.

When displayed, the waveform data are input to the data buffers U18 and U12 from the waveform memory through the data selector.

On the other hand, the time axis is generated by the counters U13, U14, and U15 in the storage mode. The time axis is then input to the X data buffer U11. The time axis counter counts the display clock generated by the cycle timing generator. In the X-Y display, the data from U29 pass by this time axis counter without stopping on the way to the X data buffers U11 and U12.

ROM

The ROMs U2 and U5 store the program to control this FTT Analyzer and fixed data.

RAM

The RAM U3 is a temporary storage area to form programs or to store temporary data.

CPU

The CPU U1 is a microprocessor to control this FFT Analyzer and execute operations. U1 is equivalent to Intell 8025.

Address Latch

The address latch is a D FF to detect and separate low level addresses. This address latch is provided because the low level address bus of the CPU is jointly used as the data bus. The FFT analyzer uses the address latches U4, U27, and U31 for U1 of the GPIB PCB.

Waveform Memory

U29 is the waveform memory for CH1.

U30 is the waveform memory for CH2.

Address Decoder for ROM and RAM

U8 is the address decoder for ROMs U2 and U5, RAM U3, and GPIB ROM U4.

Address Decoder for Waveform RAM

U24 is the address decoder for waveform RAMs U29 and U30.

Address Decoder to write in CPU PCB

This address decoder is used to write the addresses 000H-7000H.

1.4.6 Input Part (See the circuit diagram on page 21.)

Q1600 and Q1601 are input gates. In the storage mode, the base attains the H level and allows Q1600 and Q1601 to input signals to the storage circuit from the V PREAMP.

Q1 and Q2 shift the level of the direct current.

Q3 and Q4 are differential amplifiers to ampligy voltage

Q5, Q6, Q7, and Q8 convert balanced output to unbalanced output.

K20 is a relay. When turned ON, this relay allows the band limitter of 200 kHz with the high range cut off to operate.

K38 is a relay. When turned ON, this relay allows signals in CH1 to be input to the storage circuit at the next stage.

K40 is a relay. When turned ON, this relay alternately uses two AD converters to realize a sampling rate twice the normal provided K138 is turned OFF.

U351 is the preamplifier control register in the storage part. U351 controls the relays for switching and the combination between the preamplifiers in the storage part and V PREAMP.

U353 is a buffer, or an interface for the CMOS and transistors.

Q351 is a relay driver.

Q356, combined with VR351, serves as DC power supply of +5V.

U352 is the ADC OFFSET register. This register is the DA converter to combine the characteristics of the AD converters U321 and U322 during peak detection.

1.4.7 Sample Hold (See the circuit diagrams on pages 22-25.)

Q80 and Q81 are temperature-controlled buffers. These buffers convert high input impedance to low output impedance.

Q59, Q60, Q61, Q75, Q77 and Q76 are the buffers similar to Q80 and Q81.

CR55, CR56, CR57, and CR58 are diode switches and form the sample hold circuit in combination with C57.

Q55, Q56, Q57, and Q58 are the drivers of diode switches.

U80 is a stabilizing circuit.

CR71, CR72, CR73, and CR74 are diode switches, and form the sample hold circuit in combination with C73.

Q71, Q72, Q73, and Q74 are diode switch drivers.

U322 is an AD converter and converts analog input signals to 8-bit digital signals.

U353 is the inversion amplifier in the operation amplifying circuit, compensating the offset of input signals.

Q41, Q42, Q43, Q44, Q45, and Q46 are linear detectors. They form the maximum value detection circuit in combination with the diode switches CR55-CR58 and the sample hold circuit C57.

Q142, Q143, Q144, Q145, Q146, and Q147 are linear detectors. They form the minimum value detection circuit in combination with the diode switches CR155-CR158 and the sample hold circuit C157.

The emitter of Q401 reaches the H level during peak detection to operate the linear detector and the maximum value and minimum value detection circuits. Thus, Q401 is the analog peak detection circuit that detects the maximum and minimum values during the sampling clock.

U201, U202, U203, U204, and U205 are the drivers of the sample hold circuit.

U403 is a DA converter that converts the digital output from the data buffer U18 to analog signals.

U406 and C435 compose a integrator. U408 is an analog switch, composing the sample hold circuit in combination of the capacitors C443 and C444, and the voltage follower U407. This analog switch and integrator compose a linear interpolator (linearilizer). The sampling clock in the sample hold circuit is input to pins 6 and 13 of the analog switch U408 through the level converters Q460 and Q461.

Output signals from the linear interpolator are converted to balanced signals by the paraphase amplifier Q405 and returned to V PREAMP.

Q475 controls the pen for the up and down motion while the recorder is turned ON.

2. VP-5730A ADJUSTMENT PROCEDURE

TABLE OF CONTENTS

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2.	Vertical Adjusting ·····	2-3
3.	Attenuator Adjusting ·····	2-8
4.	Triggering ·····	2-10
5.	Horizontal Adjusting ·····	2-13
6.	Digital Storage ·····	2-16

Note: This procedure assumes that the set has already undergone preliminary adjustment.

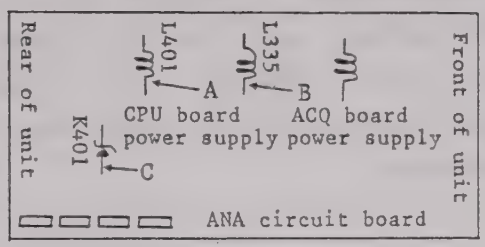
2. POWER SUPPLY: High-Voltage Portion

Procedure | Sketch | Specifications (Target value)

2.1 Check voltages with a digital voltmeter

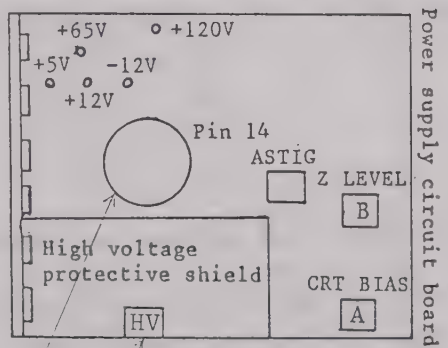
ANA Circuit Board (Digital storage power supply)

		Ripple Voltage
+ 5 V (A)	+ 4.7 to 5.2 V	50 mV p-p
+ 5 V (B)	+ 4.7 to 5.2 V	50 mV p-p
-12 V (C)	-11.5 to -12.5 V	5 mV p-p



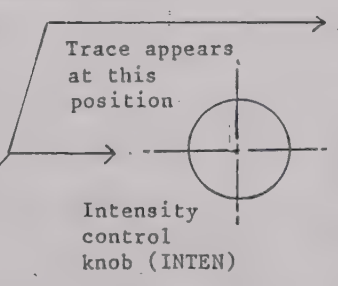
Power Supply Circuit Board

		Ripple Voltage
+12 V	+11.5 to +12.5 V	5 mV p-p
+ 5 V	+ 4.8 to + 5.2 V	5 mV p-p
-12 V	-11.5 to -12.5 V	5 mV p-p
+65 V	+63 to +67 V	5 mV p-p
+140 V	+130 to +150 V	3 V p-p

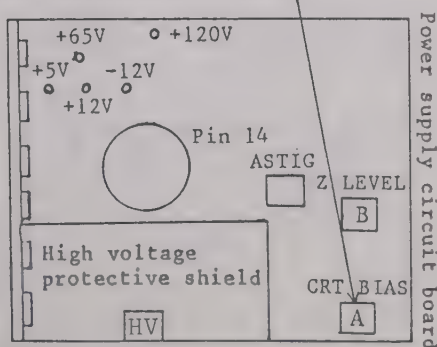


2.1.1 Adjust high-voltage power supply (using digital voltmeter)

Adjust the Cathod Ray Tube (CRT) voltage (pin 14) to 1.5 kV.



Measure the zero point of the 2-axis output, with the intensity control knob turned fully counterclockwise. Adjust the 2-level potentiometer B until the output voltage is as shown in the sketch below.



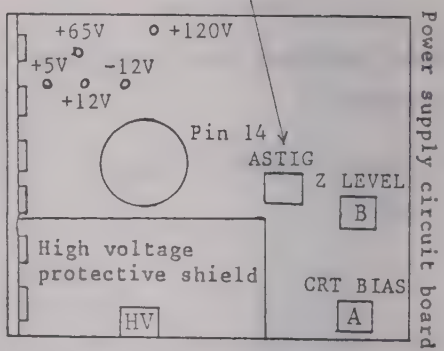
2.1.2 Adjust CRT bias

Adjust the CRT BIAS until the trace appears at the intensity control knob shown in the sketch.

Procedure Sketch Specifications (Target value)

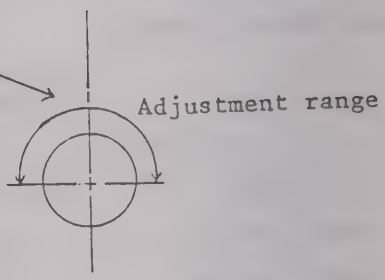
2.1.3 Adjust astigmatism

Apply a sinewave with a frequency of approximately 1 kHz and adjust the ASTIG control until the FOCUS knob on the panel yields the clearest trace somewhere in the range shown in the sketch.



2.1.4 Check FOCUS Knob Position

The dot on the FOCUS knob should be within 15° of "12 o'clock" position.



2.1.5 Check high voltage oscillation

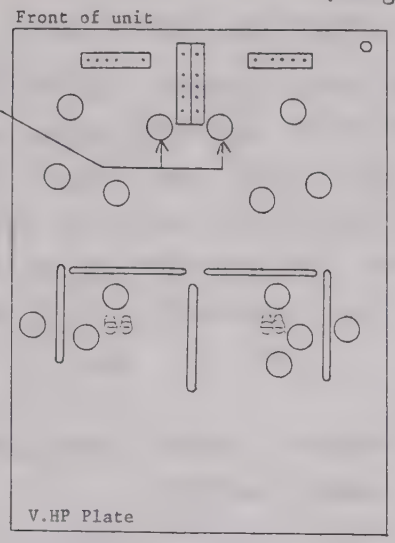
Turn the power switch OFF and then ON. The oscillation should start

VERTICAL ADJUSTING

Procedure | Sketch | Specifications (Target value)

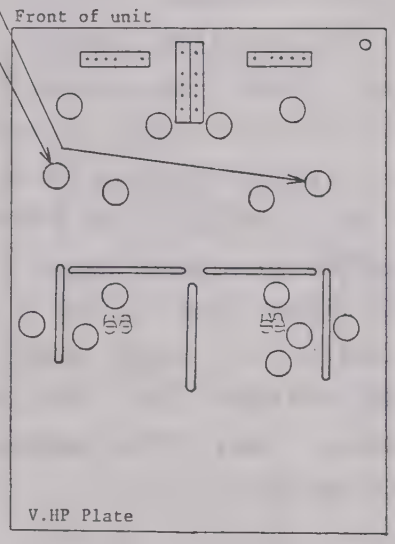
2.2 Adjust step attenuator (ATT) balance

With the white VARIABLE VOLT/DIV control knob in the CAL position, adjusting the potentiometer until the trace does not jump when the corresponding black knob is switched between the 2, 5, and 10 mV positions. Apply this procedure to both CH1 and CH2.



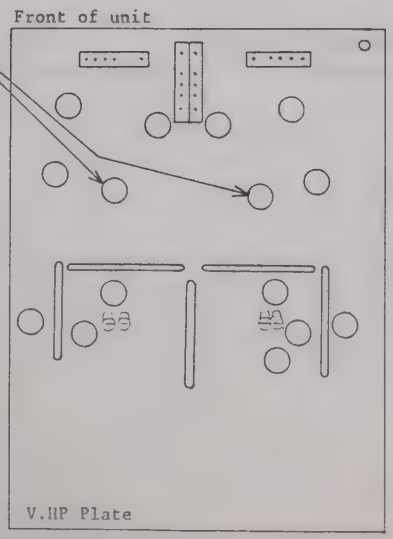
2.2.1 Adjusting Variable Bal

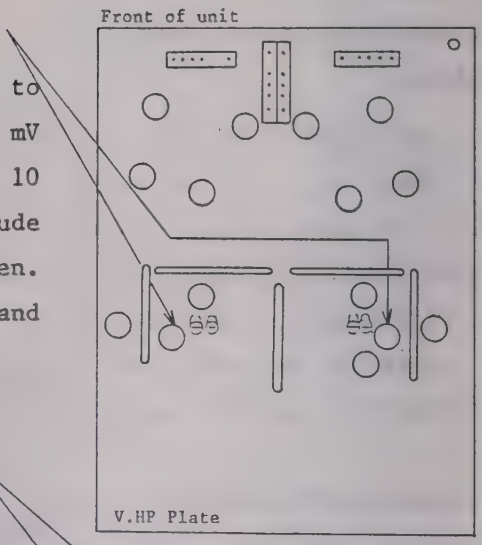
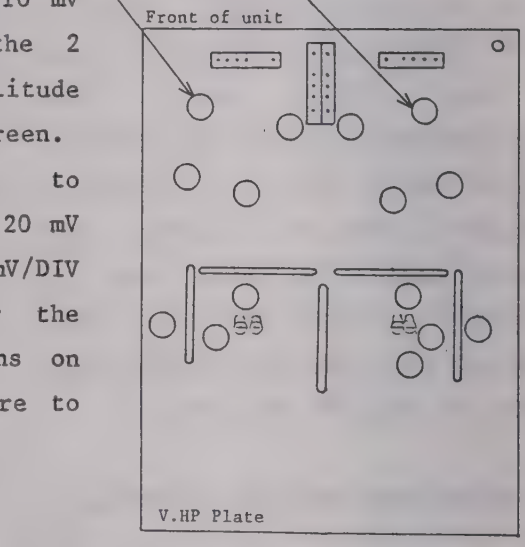
With the white VARIABLE control knob in the CAL position, shift the trace to the center of the screen. Turn the white knob fully counterclockwise. Adjust the VARIABLE BAL (R134) until the trace returns to the original position. Repeat these two steps until the trace does not move when the white knob is turned between its two extremes. Apply this procedure to both CH1 and CH2.



2.2.2 Adjust the vertical centering

Adjust the POSITION CENTER (R142) until the trace is in the center of the screen when the vertical position knob is in mid-range. Apply this procedure to both CH1 and CH2.



Procedure	Sketch	Specification (Target value
2.2.3 Adjust the vertical gain Set the Attenuator VOLTS/DIV to the 10 mV/DIV position. Apply a 50 mV p-p test signal and adjust the 10 mV/DIV GAIN (R146) until the amplitude measures five divisions on the screen. Apply this procedure to both CH1 and CH2.		0%
2.2.4 Adjust 2 mV/DIV. Gain and check 5 mV/DIV. Set the Attenuator VOLTS/DIV to the 2 mV/DIV position. Apply a 10 mV p-p test signal and adjust the 2 mV/DIV GAIN (R116) until the amplitude measures five divisions on the screen. Set the Attenuator VOLTS/DIV to the 5 mV/DIV position. Apply a 20 mV p-p test signal and set to 5 mV/DIV GAIN control to check whether the amplitude measures four divisions on the screen. Apply this procedure to both CH1 and CH2.		0%

Procedure	Sketch	Specifications (Target value)

2.2.5 Adjust Rectangular Wave Frequency Characteristics

1. Apply a rectangular wave of 1 kHz to the CH1 of 10 mV/DIV. Adjust the corresponding capacitor and resistor to obtain optimum signal shape.

2. Starting from the state of 1., apply a rectangular wave of 100 kHz. Adjust the corresponding capacitor and resistor to obtain optimum signal shape.

3. Adjust the rectangular wave flat, confirming the frequency characteristics. (Resistor (R) 145, Condenser (C) 145, C145A, R245, C245, C245A -- Adjust the corresponding capacitor and resistor to obtain optimum signal shape.

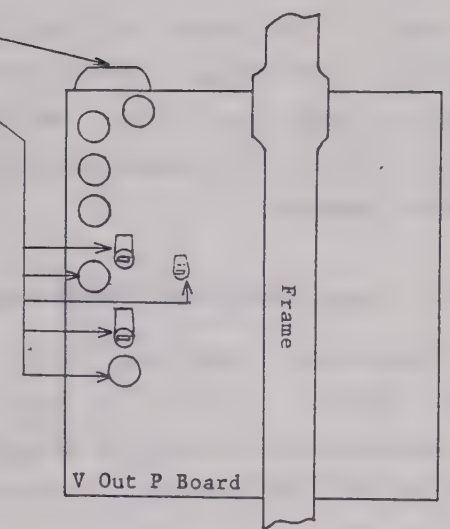
4. Check CHOP Crosstalk

Set the vertical mode to CHOP, apply a rectangular wave of 1 kHz and select 2 mV/DIV. to CH1. Check whether the trace is straight. If an interference exists, repeat steps 2. and 3.

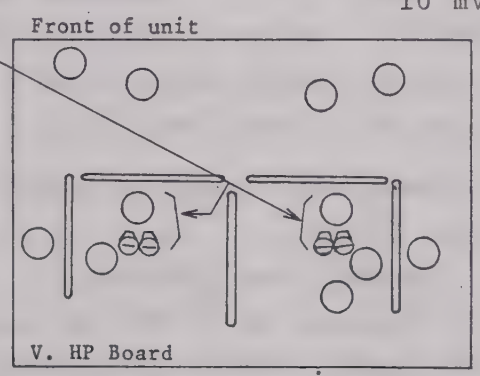
5. Check the frequency characteristics of 2 mV/DIV. gain and 5 mV/DIV. gain.

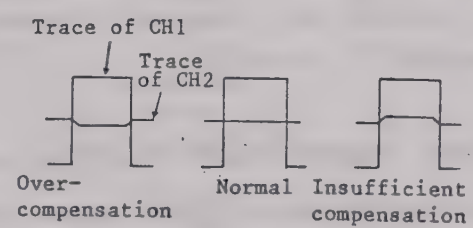
6. Change CH2 to 10 mV/DIV. And adjust the rectangular wave characteristics.

7. Check AC-GND-DC switch. Both of AC and DC should satisfy the frequency bandwidth.



10 mV/DIV
50 MHz
3 dB





Chop crosstalk

5 mV/DIV
50 MHz - 3 dB
2 mV/DIV
25 MHz - e dB

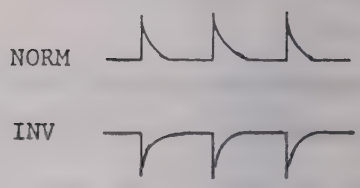
Procedure

Sketch

Specificatio
(Target valu

2.2.6 Check Polarity Change of CH2

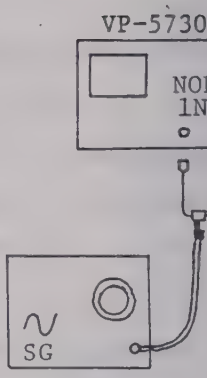
Apply a time marker of 1 ms (normal polarity) and change the polarity (by pushing down the POLAR switch) to check whether the shape shown in the sketch appears.



2.2.7 Check Additional (ADD) Function

1. Common-mode rejection ratio at 50 kHz: 50:1

Simultaneously apply a sinewave to CH1 and CH2 via T-branch. (Each channel shall be 2.5 divisions respectively.) CH2 shall have 5 divisions by normal (NORM) polarity, and 0 divisions by inverted (INV) polarity.

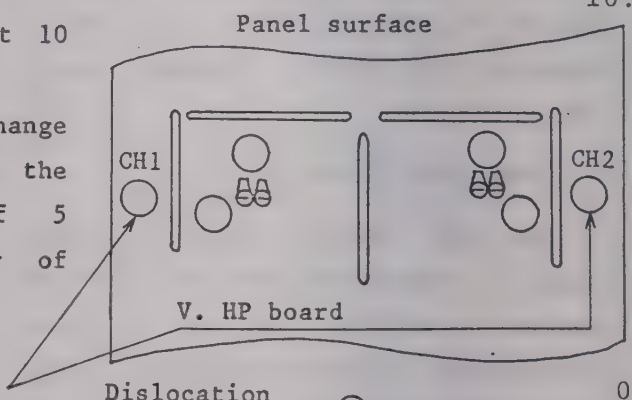


50:

2. Common-mode rejection ratio at 10 kHz: 10:1

Starting from the state 1, change the frequency to 10 MHz and make the CH2 have normal polarity of 5 divisions and inverted polarity of maximum 0.5 division.

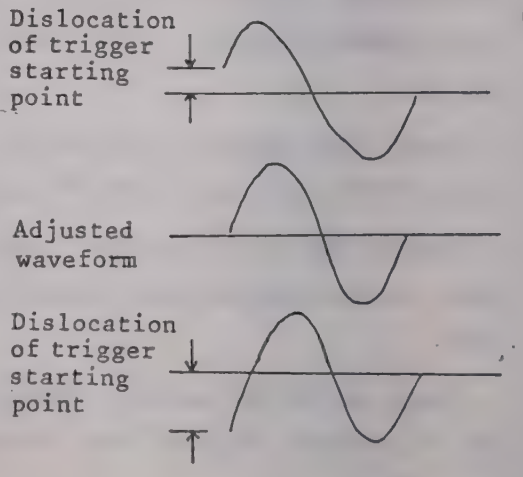
10:1



2.2.8 Adjust Trigger DC Level

1. The 50 kHz sinewave input trigger to CH1 shifts the trigger starting point of AC triggering of CH1 to the center of the screen. Starting from this state, change the triggering from with AC to with DC and adjust the trigger start point to the center of the screen.

0

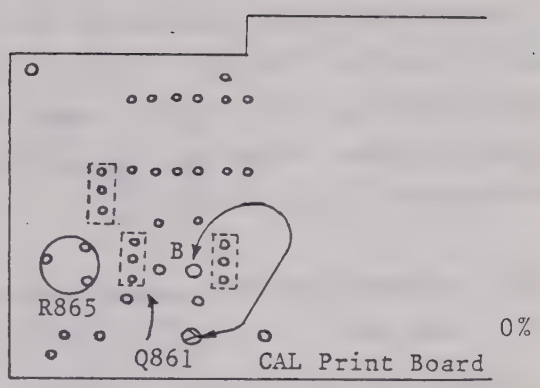


Procedure | Sketch | Specifications (Target value)

2. Adjust the trigger of CH2 applying a signal as same as step 1.

2.2.9 Adjust CAL Voltage

- o Connect shortly the base emitters of Q861 to stop the CAL oscillation.
- o Connect the digital voltmeter to the CAL terminal.
- o Turn the R865 to meet the voltage to 0.1 V: 0%



2.2.10 Check Linearity: 0.2 division max.

Lessthan

The amplitude shall be within the specification when it is vertically moved within the graticule tine (option: g) mark of 2 division position at the center of the screen.

2.2.11 Check Interference

Connect circuit as same as step 2-8.

Attenuation interference:

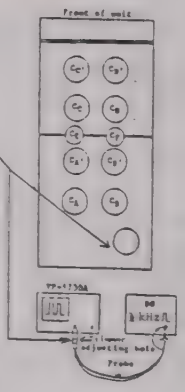
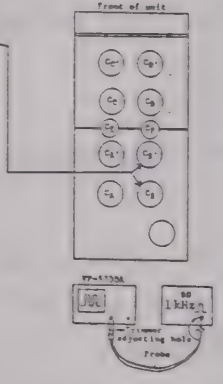
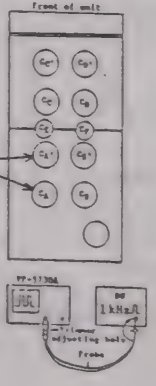
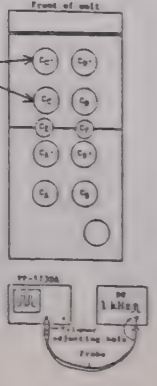
0.2 division

Amplifier interference:

0.2 division

	CH1	CH2
Attenuation interference	2mV/DIV GND	Input of 5 V under 5 V/DIV.
	Input of 5V under 5 V/DIV. applied a signal of 10 MHz	2mV/DIV GND 10 MHz
Amplifier interference	2mV/DIV GND	Input of 5 DIV. under 2 mV/DIV. applied a signal of 10 MHz
	Input of 5 DIV. under 2 mV/DIV. applied a signal of 10 MHz	2mV/DIV. GND

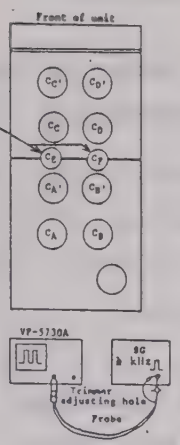
ATTENUATOR ADJUSTING

Procedure	Sketch	Specifications (Target value)
2.3 Adjust Input Capacity of Ch1 and CH2 Select the input capacity of 30 pF and 10 mV/DIV. range. Connect the probe and adjust the probe trimmer to obtain optimum shape of the applied rectangular wave of 1 kHz.		30 PF ± 3 PF (30 PF ± 1 PF)
2.3.1 Adjust 20 mV/DIV. Range of CH1 and CH2 Apply a rectangular wave of 1 kHz with an amplitude of approximately 6 divisions. Adjust the corresponding capacitors and resistors for optimum shape of the rectangular wave at rapid rising portion by C_A knob, and the wave at slow rising portion by $C_{A'}$ knob.		
2.3.2 Adjust 50 mV/DIV. Range of CH1 and CH2 Proceed same adjusting as the step 2.3.1 Rapid rising portion: by C_B knob Slow rising portion: by $C_{B'}$ knob		
2.3.3 Adjust 0.1 V/DIV. Range of CH1 and CH2 Proceed same adjusting as the step 2.3.1 Rapid rising portion: by C_C knob Slow rising portion: by $C_{C'}$ knob		

Procedure | Sketch | Specifications (Target value)

2.3.4 Adjust 0.2 V/DIV. and 0.5 V/DIV. ranges of CH1 and CH2

Proceed as same as the step 3.2 to adjust the rapid rising portion of 2 V/DIV. by C_E knob and the rapid rising portion of 5 V/DIV. by the C_F knob.

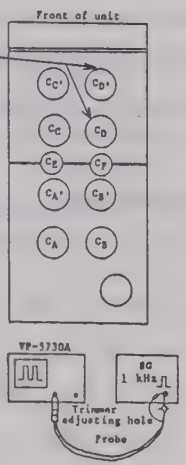


2.3.5 Adjust 1 V/DIV. Range of CH1 and CH2

Proceed same adjusting as the step 2.3.1

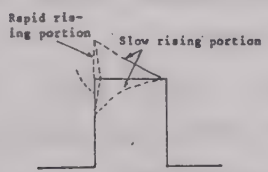
Rapid rising portion: by C_D knob

Slow rising portion: by $C_{D'}$ knob

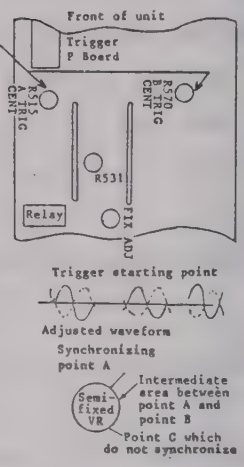
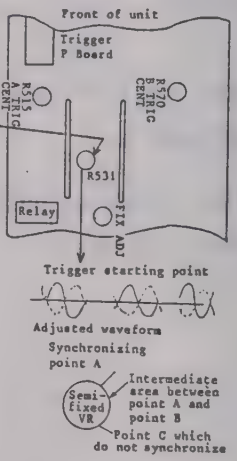
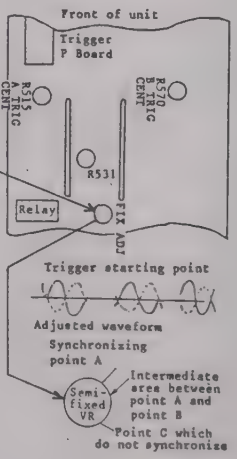


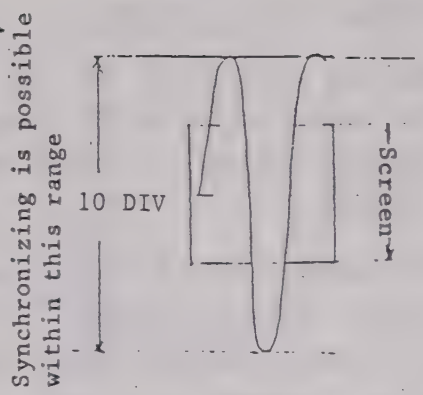
2.3.6 Check 2 V/DIV. and 5 V/DIV. Ranges of CH1 and CH2

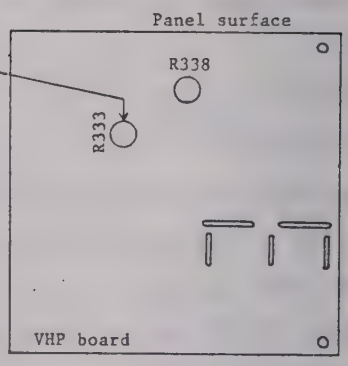
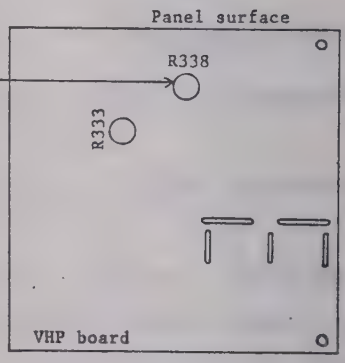
Check whether the optimum shape of the rectangular wave appears on the screen.



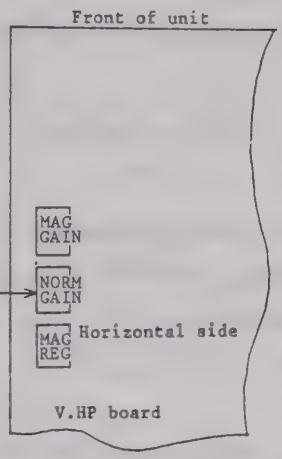
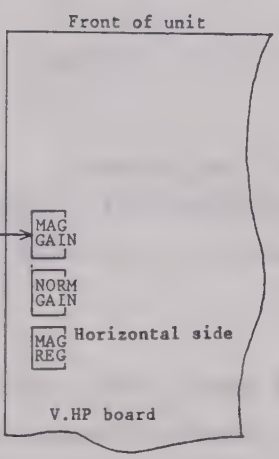
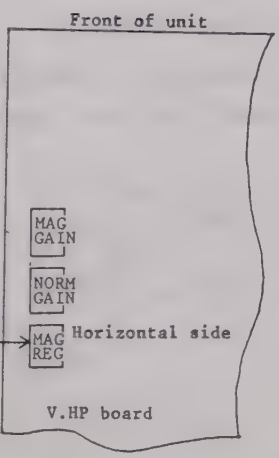
TRIGGERING

Procedure	Sketch	Specification (Target value
2.4 Adjust Trigger Center of Timebase A and Delayed Timebase B Turn the TRIG LEVEL knob to the mid-position, and adjust R515 or R570 to shift the trigger starting point to the center of the screen.	Synchronizing 	
2.4.1 Adjust In and Out Change Function of Slope Switch Turn the slope switch to + and −, and adjust to prevent the over-lapping of starting points of the sinewave.		
2.4.2 Adjust FIX Triggering Sensitivity: Amplitude of 0.5 DIV. by 5 MHz sinewave signal (0.4 DIV. by 5 MHz) Amplitude 3.0 DIV. by 30 MHz sinewave signal (2.0 DIV. by 30 MHz) Apply a 5 MHz sinewave signal with an amplitude of 0.4 DIV. Gradually turn the FIX ADJ clockwise, and confirm the point at which the wave is triggered. Furthermore turn the FIX ADJ clockwise, to find a point at which the wave is triggered. Adjust the Volume set point to the intermediate area of these 2 points.		5 MHz 0.5 DIV (5 MHz 0.4 DIV) 30 MHz 3.0 DIV (30 MHz 2.0 DIV)

Procedure	Sketch	Specifications (Target value)
2.4.3 Selection Range of Trigger Level: Selectable ± 1 V (Not selectable ± 2 V) Fully turn the trigger level knob clockwise (or counterclockwise). Starting from this state, check whether a sinewave of 50 kHz is triggered up to 10 divisions of screen.		
2.4.4 Check TV Triggering: 1.0 DIV. internal (0.5 DIV. internal) 0.5 V_{p-p} external (0.3 V_{p-p} external) Set the AC-DC-TV switch to TV. Pull out the knob (LEVEL control). Check whether a stationary pattern is obtained with both of external and internal inputs. Check whether the TV triggering can be changed by turning the Time/DIV knob to vertical triggering or horizontal triggering.	A sweep	Trigger by vertical synchronizing function: 0.5 s/DIV. to 0.1 ms/DIV Trigger by horizontal synchronizing function: 50 s/DIV. to 0.1 s/DIV.
2.4.5 Check LINE Triggering The trigger level should be selected when a power supply waveform signal is applied within the eight divisions of the screen.		

Procedure	Sketch	Specification (Target value)
2.4.6 Adjust X-Y: ± 3% (0%)		
1. Adjust the sensitivity: Set the CH1 VOLTS/DIV switch to 10 mV/DIV. Apply a sinewave of 50 mVp-p. Adjust R333 to 5 divisions.		±3% (0%
2. Adjust position with R338. Set the delayed timebase to 1 ms/DIV. A sweep starting point shall be met at leftmost graticule line (option: g) mark of the screen. Starting from this state, change switch to X-Y mode. Keep the H position knob as it were. Shift the spot to the center with X-Y position (R338).		
3. Check phase (see step 2.8 for connection.): 3' at 50 kHz (0') Apply a same signal to X and Y with a T-branch and check that phase should be 3' maximum.		50 kHz (0°)
2.4.7 Check Auto Sweep A sinewave input of 100 Hz should be triggered and swept without applying signals.		
2.4.8 Checking Triggering Characteristics Check whether a wave is synchronized with specified frequency, amplitude, and voltage.		

HORIZONTAL ADJUSTING

Procedure	Sketch	Specifications (Target value)
2.5 Adjust NORM Gain: 0.25 s/DIV. to 0.2 s/DIV. ± 3 % 0.5 s/DIV. and 0.1 s/DIV. ± 4% (± 2 %) Set the main timebase (for A sweep) to 1.0 ms/DIV. Apply 1.0 ms Time Marker Adjust the corresponding resistor and capacitor the markers are located on the graticule line.		0.25/DIV - 0.2 s/DIV ±3% 0.5s/DIV 0.1 s/DIV ±0.4% (±2%)
2.5.1 Adjust Mag Gain: Add a mag gain of 2% (0%) to NORM. Starting from step 5.1, apply 10 µs Time Markers. Adjust the corresponding resistor and capacitor the markers are located on the graticule line.		
2.5.2 Adjust Mag N.B. Magnification Register Starting from step 5.2, use the horizontal position control to bring the sweep starting point to the center graticule line of the screen. Then set NORM, and adjust the moved marker to the center graticule line. Repeat this adjustment twice or three times.		

Procedure

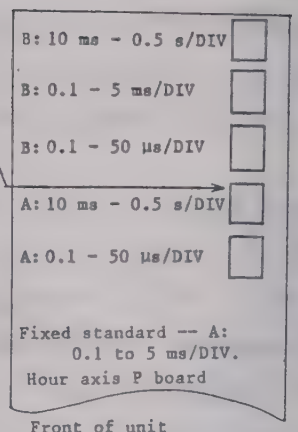
Sketch

Specification (Target value

2.5.3 Adjust A Sweep of 10 ms/DIV.: 0%

Set the main timebase to 10 ms/DIV.

Apply 10 ms Timer Markers. Adjust the corresponding resistor & capacitor so that the markers are located on the graticule line.

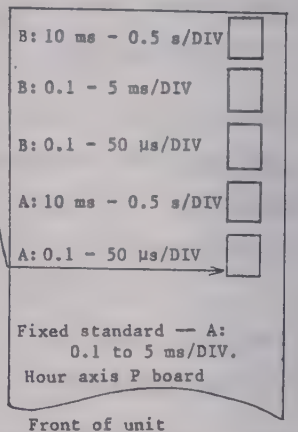

B: 10 ms - 0.5 s/DIV
B: 0.1 - 5 ms/DIV
B: 0.1 - 50 µs/DIV
A: 10 ms - 0.5 s/DIV
A: 0.1 - 50 µs/DIV
Fixed standard -- A: 0.1 to 5 ms/DIV.
Hour axis P board
Front of unit

(0%)

2.5.4 Adjust A Sweep of 10 µs/DIV.: 0%

Set the main timebase to 10 µs/DIV.

Apply 10 µs Time Markers. Adjust the corresponding resistor & capacitor so that the markers are located on the graticule line.

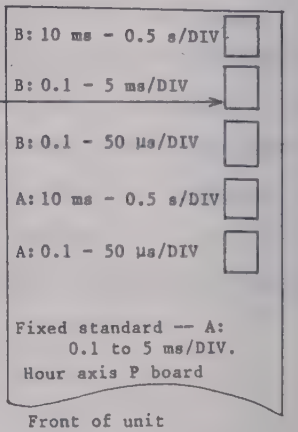

B: 10 ms - 0.5 s/DIV
B: 0.1 - 5 ms/DIV
B: 0.1 - 50 µs/DIV
A: 10 ms - 0.5 s/DIV
A: 0.1 - 50 µs/DIV
Fixed standard -- A: 0.1 to 5 ms/DIV.
Hour axis P board
Front of unit

(0%)

2.5.5 Adjust B Sweep of 0.1 ms/DIV.

Set the delayed timebase to 0.1 ms/DIV.

Apply 10 ms Time Markers. Adjust corresponding resistor & capacitor so that markers are on the graticule lines.

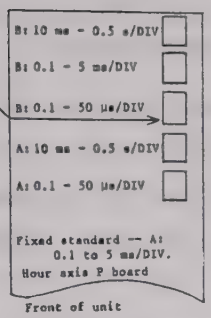

B: 10 ms - 0.5 s/DIV
B: 0.1 - 5 ms/DIV
B: 0.1 - 50 µs/DIV
A: 10 ms - 0.5 s/DIV
A: 0.1 - 50 µs/DIV
Fixed standard -- A: 0.1 to 5 ms/DIV.
Hour axis P board
Front of unit

Procedure	Sketch	Specifications (Target value)

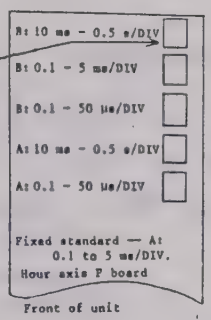
2.5.6 Adjust B Sweep of 10 µs/DIV.

Set the delayed timebase to 10 µs/DIV.

Apply 10 µs Time Markers. Adjust corresponding resistor & capacitor so that markers are on the graticule lines.


B: 10 ms - 0.5 s/DIV
B: 0.1 - 5 ms/DIV
B: 0.1 - 50 µs/DIV
A: 10 ms - 0.5 s/DIV
A: 0.1 - 50 µs/DIV
Fixed standard — A: 0.1 to 5 ms/DIV.
Hour axis P board
Front of unit

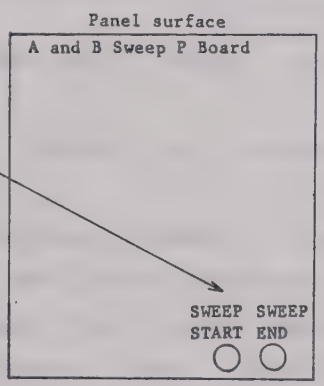
2.5.7 Adjust B Sweep of 10 ms/DIV.


B: 10 ms - 0.5 s/DIV
B: 0.1 - 5 ms/DIV
B: 0.1 - 50 µs/DIV
A: 10 ms - 0.5 s/DIV
A: 0.1 - 50 µs/DIV
Fixed standard — A: 0.1 to 5 ms/DIV.
Hour axis P board
Front of unit

2.5.8 Adjust Delayed Start and Delay Stop

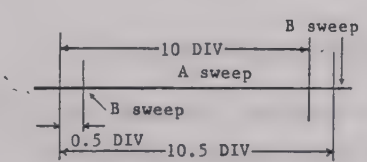
1. Select A INTEN, set the main timebase (A Sweep) to 0.5 ms/DIV. and set the delayed timebase (B Sweep) to 0.5 µs/DIV. Fully turn the Delayed Time position knob on the panel counterclockwise. Adjust the B Sweep (bright portion) to 0.5 DIV.

2. Starting from step 1., fully turn the Delayed Time position knob clockwise. Adjust the B Sweep (bright portion) to 0.5 DIV. Repeat steps 1. and 2. once or twice.



2.5.9 Correct H Amplifier (AMP) Phase

Turn C834 and C837 to adjust the sweep hour of 10 ns/DIV. to 50 ns/DIV.



DIGITAL STORAGE

Procedure

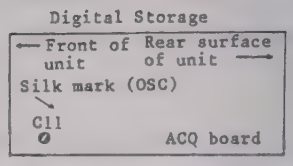
(The oscilloscope should have completely been adjusted prior to this adjusting.)

Sketch

Target valu

2.6 Adjust Clock Oscillation

Connect the probe to the U11-13PIN OSC mark, and check the oscillation starting. Rotate the C11 trimmer condenser and set at the stabilized point.

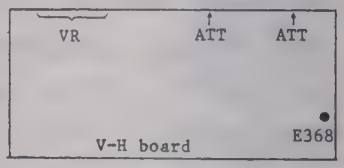


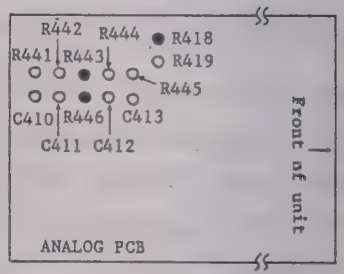
2.6.1 Check CPU Operation

Connect the GPIB circuit board to the connector. (The option-less product shall be connected as well.) Set Fast Arm condition, and simultaneously pressing Averaging and ACCU-M, turn the power supply ON.

Test program starts.

- o Check whether the Repetitive Store (red) lights ON and OFF.
  Lighting ON and OFF: Normal CPU operation
- o Check whether the TRIG'D (green) lights ON.
  Lighting: Normal thumb check of ROM
- o Check whether the Execute (amber) lights ON.
  Lighting: Normal waveform RAM U29.30 and normal working RAM U3
- o Repeat above steps 5 or 6 times and check whether same condition is displayed. If abnormal, check the clock oscillation.

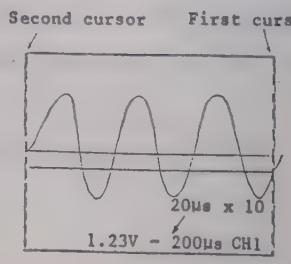




2.6.2 Adjust Display Area

Set the digital storage to X-Y and 20 µs/DIV. and input waveform.

- o Set the external V position R368 to the center.
- o Set the vertical effective area to 8 DIV. with Y-Gain R466: 0%
- o Set the vertical effective area to 8 DIV. with X-Gain R443: 0%



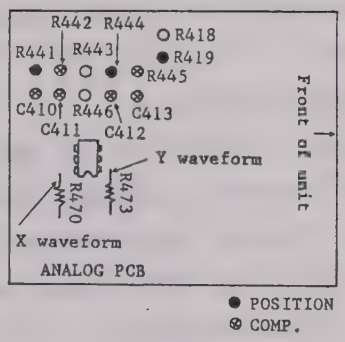
0%

0%

Procedure (The oscilloscope should have completely been adjusted prior to this adjusting.)	Sketch	Target value
Set the digital storage to T-Y and the Cursor-1 to 20 μs/DIV.		
o Set the horizontal effective area to 10.24 DIV. with T-Gain R418. It is easy to distinguish by setting the cursor to 10 DIV. = 200 s.		

2.6.3 Adjust position

Set oscilloscope state, and meet the H-position (panel) to a standard. Change the storage to Fast Arm, X-Y, and 20 s/DIV.



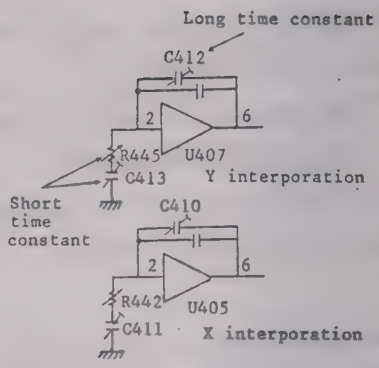
o Meet the effective area to the 0 DIV. and 8 DIV. of the Cathode Ray Tube (CRT) with Y-position R444: 0%		0%
o Meet the effective area to the 1 DIV. and 9 DIV. of the Cathode Ray Tube (CRT) with Y-position R441: 0%		0%
Change the storage to Fast Arm, T-Y, 20 s/DIV.		
o Meet the leftmost waveform to the 0 DIV. of CRT with T-position R419: 0%		0%
o Change X-Y, T-Y, Oscilloscope, X-Y to check the adjusting.		

Procedure
(The oscilloscope should have completely been adjusted prior to this adjusting.)

Sketch

Target value

2.6.4 Interporate Oscillator



- o Fully turn the resistors R445 and R442 clockwise. (0 ohm)
  Set following, and input waveform to display Four waves.
  The storage: SLOW ARM, T-Y, Trig. Window Memory View
  The Oscilloscope: 20 µs/DIV., Chop of 20 mV/DIV.
  Input: 10 MHz sinewave
- o Observing the distortion of each letters and waveform, adjust C412 and C413 at Y-axis, C410 and C411 at X-axis. R445 and R442 bend the distortion of the waveform. Set to the most favorable state.

2.6.5 Adjust ADC Gain

Adjust by the steps described left. Parallelly operate CH1 and CH2, and correct the Gain difference of both channels.

- o Rotate the CH2 ADC Gain R334, and meet the CH1 ADC to the Gain: 0%

Set Fast Arm, T-V, 10 s/DIV. on CH1 (CH2) and apply an input signal of 50 kHz sinewave. Simultaneously pressing the Averaging and the Record buttons, switch the power supply ON.

↓

Test program starts and the automatic calibration is prohibited.

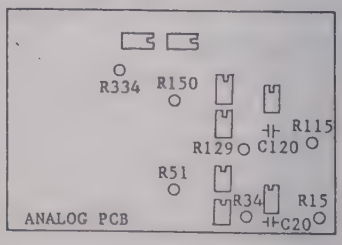
0%

Adjust the ADC Gain ADJ in this condition.

2.6.6 Adjust CH1 and CH2 Position

Correct the vertical position difference between the Fast Arm and Non Store under 20 s/DIV. Chop.

- o Rotate the CH1 Position R34 and adjust: 0%
- o Rotate the CH2 Position R129 and adjust: 0%



0%

Procedure (The oscilloscope should have completely been adjusted prior to this adjusting.)	Sketch	Target value

2.6.7 Procedure CH1 and CH2 Gain

The Gain of the oscilloscope should have been checked with CALIB. Use Fast Arm, T-Y, Cursor-1 to input CALIB. The standard amplitude shall be the cursor read-out. (Readjust items to adjust the error with the graticule line.

- o Rotate the CH1 Gain R15 to meet the amplitude with it:
  0% under 10 mV/DIV.
- o Rotate the CH2 Gain R15 to meet the amplitude with it:
  0% under 10 mV/DIV.

10 mV/DIV

2.6.8 Check LP Filter with 200 kHz:
-3 dB under 180 kHz to 220 kHz

-3 dB.

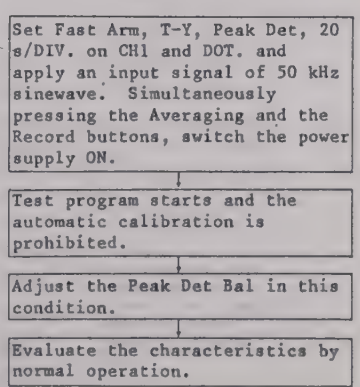
Input 200 kHz under Fast Arm of 20 s/DIV., and observe operation effect.

- o If the error is large, replace CH1-C20 and CH2-C120.
- o When operated, check whether the vertical position varies. (Check whether the amplifier additionally oscillates.)

2.6.9 Adjust Peak Det Bal 1 and 2

Caution:

* Peak Det Bal 1: Adjust upper limit peak detection by meeting it to the position +0.5 to 1 DIV. from the center. Adjust lower limit peak detection by meeting it to the position -0.5 to -1 DIV. from the center.


Set Fast Arm, T-Y, Peak Det, 20 s/DIV. on CH1 and DOT. and apply an input signal of 50 kHz sinewave. Simultaneously pressing the Averaging and the Record buttons, switch the power supply ON.
Test program starts and the automatic calibration is prohibited.
Adjust the Peak Det Bal in this condition.
Evaluate the characteristics by normal operation.

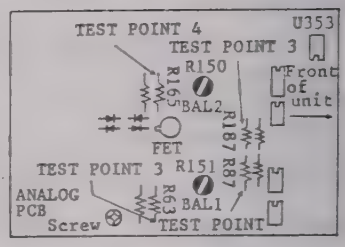
Procedure

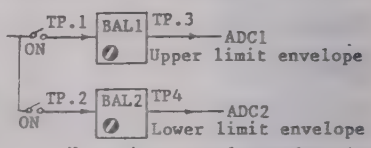
(The oscilloscope should have completely been adjusted prior to this adjusting.)

Sketch

Target valu

* Since Peak Det Bal 1 moves the vertical position upwards and Peak Det Bal 2 moves the vertical position downwards. The Bals 1 and 2 should be equally operated.
* If a dislocation exists between upper envelope and lower envelope when no signals are input, the automatic calibration works to generate a voltage to position at the equal point from the upper and lower. (U353) Therefore turn the Peak Det ON and OFF to avoid the vertical position variation.
* Since following frequency -- 5 MHz, 7.5 MHz, and 10 MHz -- generate the beat in the Peak Det circuit, adjust to minimize it under 20 s/DIV. (Identify by DOT display.): Specification is 10 MHz/-3dB DC.





Note that actual waveform is reversed up and down.

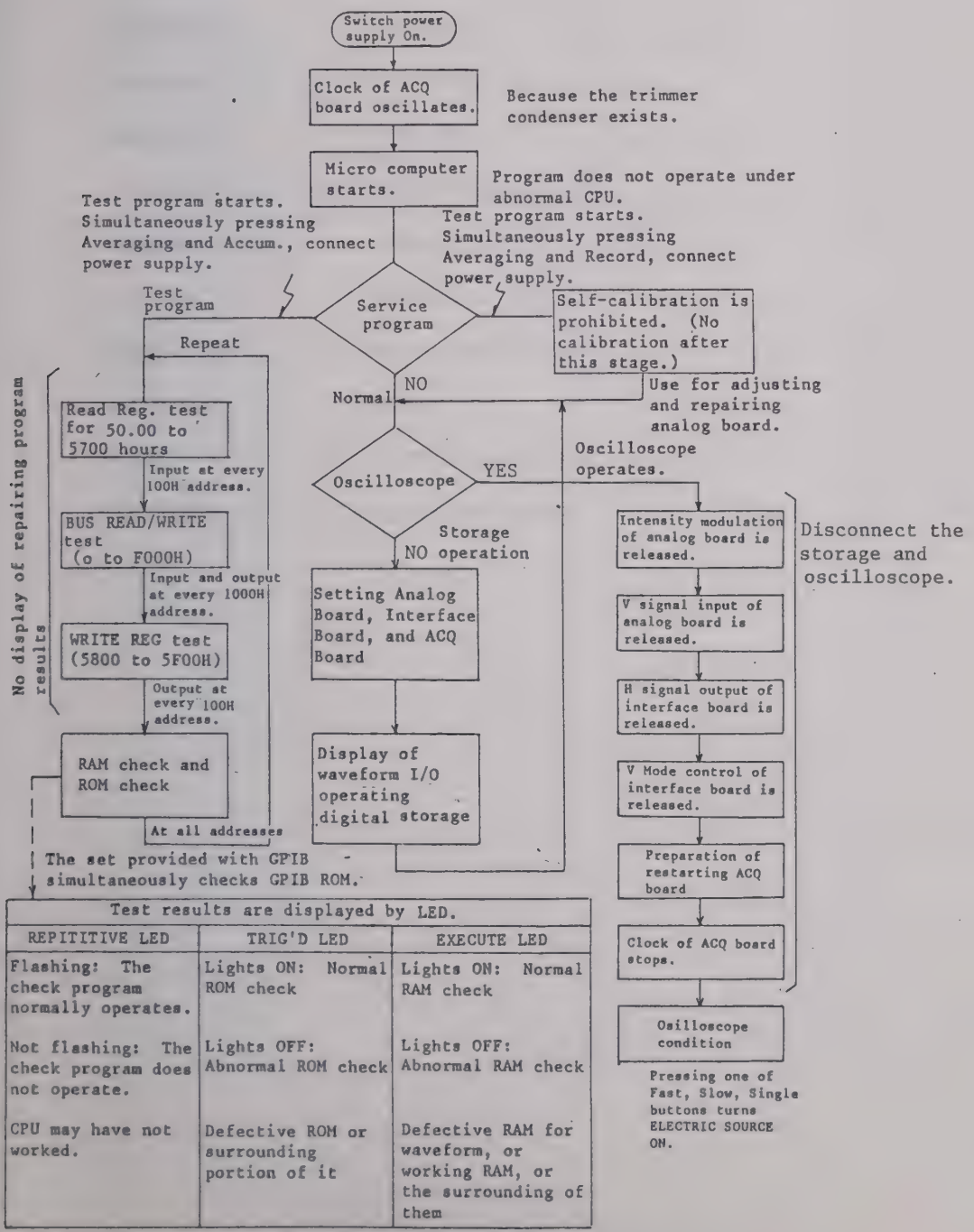
DC

10 MHz/-3 dB

CAUTION

Since this apparatus is controlled by a microprocessor, if the digital portion does not work, the oscilloscope portion does not work.

Operation flow of this apparatus: Please refer following chart for testing the initial operation of this apparatus.


Switch power supply On.
Clock of ACQ board oscillates.
Because the trimmer condenser exists.
Micro computer starts.
Program does not operate under abnormal CPU.
Test program starts. Simultaneously pressing Averaging and Accum., connect power supply.
Test program starts. Simultaneously pressing Averaging and Record, connect power supply.
Test program
Service program
Self-calibration is prohibited. (No calibration after this stage.)
Repeat
Normal
NO
Use for adjusting and repairing analog board.
Read Reg. test for 50.00 to 5700 hours
Input at every 100H address.
Oscilloscope
YES
Oscilloscope operates.
BUS READ/WRITE test (0 to F000H)
Storage
NO operation
Input and output at every 1000H address.
Setting Analog Board, Interface Board, and ACQ Board
WRITE REG test (5800 to 5F00H)
Output at every 100H address.
RAM check and ROM check
Display of waveform I/O operating digital storage
At all addresses
No display of repairing program results
The set provided with GPIB simultaneously checks GPIB ROM.
Intensity modulation of analog board is released.
Disconnect the storage and oscilloscope.
V signal input of analog board is released.
H signal output of interface board is released.
V Mode control of interface board is released.
Preparation of restarting ACQ board
Clock of ACQ board stops.
Osilloscope condition
Pressing one of Fast, Slow, Single buttons turns ELECTRIC SOURCE ON.

Test results are displayed by LED.		
REPITITIVE LED	TRIG'D LED	EXECUTE LED
Flashing: The check program normally operates.	Lights ON: Normal ROM check	Lights ON: Normal RAM check
Not flashing: The check program does not operate.	Lights OFF: Abnormal ROM check	Lights OFF: Abnormal RAM check
CPU may have not worked.	Defective ROM or surrounding portion of it	Defective RAM for waveform, or working RAM, or the surrounding of them

3. PARTS LIST

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INPUT ATT DWG NO 4G204671

REF NO		QTY	PART NO	DESCRIPTION	
		4	4G615654-0WB	P5230A SHIELD:PLATE ATT	
C	3A	1	MD12J473M	C:FXD FLM	0.047UF 20% 630V
C	3B	1	MD12J473M	C:FXD FLM	0.047UF 20% 630V
C	5A	1	ECCD2H020C	C:FXD CER TC	2PF +-0.25PF 500V SL
C	5B	1	ECCD2H020C	C:FXD CER TC	2PF +-0.25PF 500V SL
C	7A	1	ECV1ZW04X53T	C:VAR CER	4PF
C	7B	1	ECV1ZW04X53T	C:VAR CER	4PF
C	8A	1	ECV1ZW04X53T	C:VAR CER	4PF
C	8B	1	ECV1ZW04X53T	C:VAR CER	4PF
C	10A	1	ECCD2H050DC	C:FXD CER TC	5PF +-0.5PF 500V NPO
C	10B	1	ECCD2H050DC	C:FXD CER TC	5PF +-0.5PF 500V NPO
C	15A	1	ECV1ZW06X53	C:VAR CER	6PF
C	15B	1	ECV1ZW06X53	C:VAR CER	6PF
C	16A	1	ECKW2H102MD	C:FXD CER HI-K	1000PF +-20% 500V
C	16B	1	ECKW2H102MD	C:FXD CER HI-K	1000PF +-20% 500V
C	20A	1	ECV1ZW20X53T	C:VAR CER	20PF
C	20B	1	ECV1ZW20X53T	C:VAR CER	20PF
C	22A	1	ECV1ZW02X53T	C:VAR CER	2PF
C	22B	1	ECV1ZW02X53T	C:VAR CER	2PF
C	26A	1	ECCW1H151K5	C:FXD CER TC	150PF +-10% 50V SL
C	26B	1	ECCW1H151K5	C:FXD CER TC	150PF +-10% 50V SL
C	30A	1	ECV1ZW20X53T	C:VAR CER	20PF
C	30B	1	ECV1ZW20X53T	C:VAR CER	20PF
C	32A	1	ECV1ZW04X53T	C:VAR CER	4PF
C	32B	1	ECV1ZW04X53T	C:VAR CER	4PF
C	36A	1	ECCW2H220K	C:FXD CER TC	22PF +-10% 500V SL
C	36B	1	ECCW2H220K	C:FXD CER TC	22PF +-10% 500V SL
C	40A	1	ECV1ZW20X53T	C:VAR CER	20PF
C	40B	1	ECV1ZW20X53T	C:VAR CER	20PF
C	42A	1	ECV1ZW06X53	C:VAR CER	6PF
C	42B	1	ECV1ZW06X53	C:VAR CER	6PF
C	46A	1	ECCW2H100F	C:FXD CER TC	10PF +-1.0PF 500V SL
C	46B	1	ECCW2H100F	C:FXD CER TC	10PF +-1.0PF 500V SL
C	50A	1	ECV1ZW10X53T	C:VAR CER	10PF
C	50B	1	ECV1ZW10X53T	C:VAR CER	10PF
C	53A	1	ECV1ZW20X53T	C:VAR CER	20PF
C	53B	1	ECV1ZW20X53T	C:VAR CER	20PF
E	10	1	4G401255	P5730A PC BOARD	INPUT ATTENUATOR
E	20	1	4G401255	P5730A PC BOARD	INPUT ATTENUATOR

INPUT ATT DWG NO 4G204671

REF NO	QTY	PART NO	DESCRIPTION	
R 129	1	EVHZ19Z05B52	R:VAR CARBON	500 OHM 20%
R 229	1	EVHZ19Z05B52	R:VAR CARBON	500 OHM 20%
R 5A	1	ERD25TJ330V	R:FXD CARBON	33 OHM 5% 1/4W
R 5B	1	ERD25TJ330V	R:FXD CARBON	33 OHM 5% 1/4W
R 11A	1	CFB1004BT2	R:FXD MET FLM	1MK OHM 0.5% 1/2
R 11B	1	CFB1004BT2	R:FXD MET FLM	1MK OHM 0.5% 1/2
R 15A	1	ERD10TJ221	R:FXD CARBON	220 OHM 5% 1/8W
R 15B	1	ERD10TJ221	R:FXD CARBON	220 OHM 5% 1/8W
R 16A	1	ERD50TJ105	R:FXD CARBON	1M OHM 5% 1/2W
R 16B	1	ERD50TJ105	R:FXD CARBON	1M OHM 5% 1/2W
R 18A	1	ERD10TJ470	R:FXD CARBON	47 OHM 5% 1/8W
R 18B	1	ERD10TJ470	R:FXD CARBON	47 OHM 5% 1/8W
R 20A	1	ERD10TJ221	R:FXD CARBON	220 OHM 5% 1/8W
R 20B	1	ERD10TJ221	R:FXD CARBON	220 OHM 5% 1/8W
R 22A	1	CFB9903BT2	R:FXD MET FLM	990K OHM 0.5% 1/
R 22B	1	CFB9903BT2	R:FXD MET FLM	990K OHM 0.5% 1/
R 24A	1	CFA1012BT2	R:FXD MET FLM	10.1K OHM 0.5% 1
R 24B	1	CFA1012BT2	R:FXD MET FLM	10.1K OHM 0.5% 1
R 26A	1	ERD10TJ510	R:FXD CARBON	51 OHM 5% 1/8W
R 26B	1	ERD10TJ510	R:FXD CARBON	51 OHM 5% 1/8W
R 28A	1	ERD10TJ271	R:FXD CARBON	270 OHM 5% 1/8W
R 28B	1	ERD10TJ271	R:FXD CARBON	270 OHM 5% 1/8W
R 30A	1	ERD10TJ470	R:FXD CARBON	47 OHM 5% 1/8W
R 30B	1	ERD10TJ470	R:FXD CARBON	47 OHM 5% 1/8W
R 32A	1	CFB9003BT2	R:FXD MET FLM	900K OHM 0.5% 1/
R 32B	1	CFB9003BT2	R:FXD MET FLM	900K OHM 0.5% 1/
R 34A	1	CFA1113BT2	R:FXD MET FLM	111K OHM 0.5% 1/
R 34B	1	CFA1113BT2	R:FXD MET FLM	111K OHM 0.5% 1/
R 36A	1	ERD10TJ101	R:FXD CARBON	100 OHM 5% 1/8W
R 36B	1	ERD10TJ101	R:FXD CARBON	100 OHM 5% 1/8W
R 38A	1	ERD10TJ680	R:FXD CARBON	68 OHM 5% 1/8W
R 38B	1	ERD10TJ680	R:FXD CARBON	68 OHM 5% 1/8W
R 42A	1	CFB8003BT2	R:FXD MET FLM	800K OHM 0.5% 1/
R 42B	1	CFB8003BT2	R:FXD MET FLM	800K OHM 0.5% 1/
R 43A	1	ERD25TJ121V	R:FXD CARBON	120 OHM 5% 1/4W
R 43B	1	ERD25TJ121V	R:FXD CARBON	120 OHM 5% 1/4W
R 44A	1	CFA2503BT2	R:FXD MET FLM	250K OHM 0.5% 1/
R 44B	1	CFA2503BT2	R:FXD MET FLM	250K OHM 0.5% 1/
R 46A	1	ERD10TJ101	R:FXD CARBON	100 OHM 5% 1/8W
R 46B	1	ERD10TJ101	R:FXD CARBON	100 OHM 5% 1/8W
R 52A	1	CFB5003BT2	R:FXD MET FLM	500K OHM 0.5% 1/2
R 52B	1	CFB5003BT2	R:FXD MET FLM	500K OHM 0.5% 1/2
R 53A	1	ERD25TJ121V	R:FXD CARBON	120 OHM 5% 1/4W
R 53B	1	ERD25TJ121V	R:FXD CARBON	120 OHM 5% 1/4W
R 54A	1	CFB1004BT2	R:FXD MET FLM	1MK OHM 0.5% 1/2W

INPUT ATT DWG NO 4G204671

REF NO	QTY	PART NO	DESCRIPTION	
R 54B	1	CFB1004BT2	R:FXD MET FLM	1MK OHM 0.5% 1/2W
S 10A	1	3G410249	P5730A ROTARY SW	ATT
S 10B	1	3G410249	P5730A ROTARY SW	ATT

V.H AMP DWG NO 4G204672

REF NO	QTY	PART NO	DESCRIPTION	
	2	FTE15	LUG TERMINAL	
C 104	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 5
C 118	1	ECCW1H050D5	C:FXD CER TC	5PF +-0.5PF 50V
C 119	1	ECCW1H020C5	C:FXD CER TC	2PF +-0.25PF 50
C 136	1	ECKW1H102KB5	C:FXD CER HI-K	1000PF +-10% 50
C 137	1	ECKW1H102KB5	C:FXD CER HI-K	1000PF +-10% 50
C 145	1	ECV1ZW20X53T	C:VAR CER	20PF
C 145A	1	ECV1ZW20X53T	C:VAR CER	20PF
C 159	1	ECKW1H102KB5	C:FXD CER HI-K	1000PF +-10% 50
C 174	1	ECCW1H101K5	C:FXD CER TC	100PF +-10% 50V
C 204	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 5
C 218	1	ECCW1H050D5	C:FXD CER TC	5PF +-0.5PF 50V
C 219	1	ECCW1H020C5	C:FXD CER TC	2PF +-0.25PF 50
C 236	1	ECKW1H102KB5	C:FXD CER HI-K	1000PF +-10% 50
C 237	1	ECKW1H102KB5	C:FXD CER HI-K	1000PF +-10% 50
C 245	1	ECV1ZW20X53T	C:VAR CER	20PF
C 245A	1	ECV1ZW20X53T	C:VAR CER	20PF
C 265	1	ECKW1H102KB5	C:FXD CER HI-K	1000PF +-10% 50
C 266	1	ECKW1H102KB5	C:FXD CER HI-K	1000PF +-10% 50
C 274	1	ECCW1H101K5	C:FXD CER TC	100PF +-10% 50V
C 301	1	ECCW1H220K5	C:FXD CER TC	22PF +-10% 50V
C 312	1	ECCW1H100F5	C:FXD CER TC	10PF +-1.0PF 50
C 352	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 356	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 5
C 359	1	ECCW1H220K5	C:FXD CER TC	22PF +-10% 50V
C 376	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 377	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 386	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 387	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 390	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 391	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 401	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 5
C 402	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 5
C 403	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 5
C 404	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 5
C 405	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 5
C 406	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 5
C 408	1	ECCW1H101K5	C:FXD CER TC	100PF +-10% 50V
C 410	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 5
C 411	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 5
C 412	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 5

V.H AMP DWG NO 4G204672

REF NO	QTY	PART NO	DESCRIPTION	
C 413	1	ECCW1H101K5	C:FXD CER TC	100PF +-10% 50V SL
C 414	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 50V
C 416	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 419	1	ECCW1H101K5	C:FXD CER TC	100PF +-10% 50V SL
C 422	1	ECCW1H101K5	C:FXD CER TC	100PF +-10% 50V SL
C 426	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 429	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 50V
C 430	1	ECCW1H680K5	C:FXD CER TC	68PF +-10% 50V SL
C 431	1	ECCW1H680K5	C:FXD CER TC	68PF +-10% 50V SL
C 440	1	ECCW1H220K5	C:FXD CER TC	22PF +-10% 50V SL
C 446	1	ECCW1H101K5	C:FXD CER TC	100PF +-10% 50V SL
C 801	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 50V
C 802	1	ECCW1H101K5	C:FXD CER TC	100PF +-10% 50V SL
C 803	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0% 500V
C 808	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 50V
C 810	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 820	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 50V
C 821	1	ECCW1H180KC5	C:FXD CER TC	18PF +-10% 50V NPO
C 822	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0% 500V
C 823	1	ECCW2H020C	C:FXD CER TC	2PF +-0.25PF 500V SL
C 824	1	ECCW2H020C	C:FXD CER TC	2PF +-0.25PF 500V SL
C 825	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0% 500V
C 826	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0% 500V
C 828	1	ECCW1H151K5	C:FXD CER TC	150PF +-10% 50V SL
C 834	1	ECV1ZW04X53T	C:VAR CER	4PF
C 837	1	ECV1ZW04X53T	C:VAR CER	4PF
C 929	1	ECEA2CS010	C:FXD AL ELECT	1UF +30%-10% 160V
C 1600	1	ECEA1CS470	C:FXD AL ELECT	47UF +-20% 16V
C 1601	1	ECEA1CS470	C:FXD AL ELECT	47UF +-20% 16V
C 1610	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 50V
C 1611	1	ECKW1H103MD5	C:FXD CER HI-K	10000PF +-20% 50V
C 1612	1	ECEA1CS221	C:FXD AL ELECT	220UF +-20% 16V
C 1620	1	ECCF1H101K	C:FXD CER TC	100PF +-10% 50V SL
C 1621	1	ECQM1H473KZ	C:FXD FLM	0.047UF 10% 50V
C 1630	1	ECCF1H101K	C:FXD CER TC	100PF +-10% 50V SL
C 1631	1	ECQM1H473KZ	C:FXD FLM	0.047UF 10% 50V
CR 100	1	1S1544A	DIODE:SI	100MA 30V
CR 110	1	MA150TA	DIODE:SI	100MA 35V
CR 111	1	MA150TA	DIODE:SI	100MA 35V
CR 112	1	MA150TA	DIODE:SI	100MA 35V
CR 113	1	MA150TA	DIODE:SI	100MA 35V

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REF NO	QTY	PART NO	DESCRIPTION	
CR 200	1	1S1544A	DIODE:SI	100MA 30V
CR 210	1	MA150TA	DIODE:SI	100MA 35V
CR 211	1	MA150TA	DIODE:SI	100MA 35V
CR 212	1	MA150TA	DIODE:SI	100MA 35V
CR 213	1	MA150TA	DIODE:SI	100MA 35V
CR 310	1	MA150TA	DIODE:SI	100MA 35V
CR 311	1	MA150TA	DIODE:SI	100MA 35V
CR 312	1	MA150TA	DIODE:SI	100MA 35V
CR 313	1	MA150TA	DIODE:SI	100MA 35V
CR 338	1	MA150TA	DIODE:SI	100MA 35V
CR 339	1	MA150TA	DIODE:SI	100MA 35V
CR 410	1	MA150TA	DIODE:SI	100MA 35V
CR 421	1	MA150TA	DIODE:SI	100MA 35V
CR 431	1	MA150TA	DIODE:SI	100MA 35V
CR 800	1	MA150TA	DIODE:SI	100MA 35V
CR 801	1	MA150TA	DIODE:SI	100MA 35V
CR 804	1	MA150TA	DIODE:SI	100MA 35V
CR 805	1	MA150TA	DIODE:SI	100MA 35V
CR 806	1	MA150TA	DIODE:SI	100MA 35V
CR 807	1	MA150TA	DIODE:SI	100MA 35V
CR 808	1	MA150TA	DIODE:SI	100MA 35V
CR 809	1	MA150TA	DIODE:SI	100MA 35V
E 100	1	1G400073-3	P5250A PC BOARD	VH AMP
J 101	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
J 103	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
J 201	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
J 203	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
J 300	1	EMCS1050	CONNECTOR	10P L=500MM
J 302	1	EMCS1050	CONNECTOR	10P L=500MM
J 350	1	163680-3	CONNECTOR	CIS 5P 2.5PITCH
J 400	1	EMCS1050	CONNECTOR	10P L=500MM
J 800	1	EMCS1050	CONNECTOR	10P L=500MM
J 902	1	350210-1	CONNECTOR	PIN HEADER 3P
J 984	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
J 1001	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
L 100	1	OP331HL82	FERRITE CORE	
L 101	1	OP331HL82	FERRITE CORE	
L 102	1	OP331HL82	FERRITE CORE	
L 103	1	OP331HL82	FERRITE CORE	
L 200	1	OP331HL82	FERRITE CORE	

V.H AMP DWG NO 4G204672

REF NO	QTY	PART NO	DESCRIPTION	
L 201	1	OP331HL82	FERRITE CORE	
L 202	1	OP331HL82	FERRITE CORE	
L 203	1	OP331HL82	FERRITE CORE	
Q 100	1	UPA61A-M	TSTR:FET	PC:250MW
Q 101	1	75A015	TSTR:SI NPN	2SC1733 SELECT
Q 104	1	75A015	TSTR:SI NPN	2SC1733 SELECT
Q 106	1	2N3906	TSTR:SI PNP	PC:300MW FT:250MHZ
Q 107	1	2N3906	TSTR:SI PNP	PC:300MW FT:250MHZ
Q 200	1	UPA61A-M	TSTR:FET	PC:250MW
Q 201	1	75A015	TSTR:SI NPN	2SC1733 SELECT
Q 204	1	75A015	TSTR:SI NPN	2SC1733 SELECT
Q 206	1	2N3906	TSTR:SI PNP	PC:300MW FT:250MHZ
Q 207	1	2N3906	TSTR:SI PNP	PC:300MW FT:250MHZ
Q 302	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q 304	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q 330	1	2SC1359-AB	TSTR:SI NPN	PC:250MW FT:300MHZ
Q 331	1	2SC1359-AB	TSTR:SI NPN	PC:250MW FT:300MHZ
Q 339	1	2SA838	TSTR:SI PNP	PC:250MW FT:300MHZ
Q 402	1	2SC1359-AB	TSTR:SI NPN	PC:250MW FT:300MHZ
Q 405	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 411	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 421	1	2SA777-RS	TSTR:SI PNP	PC:750MW FT:120MHZ
Q 422	1	2SC1509-RS	TSTR:SI NPN	PC:750MW FT:120MHZ
Q 800	1	2SA838	TSTR:SI PNP	PC:250MW FT:300MHZ
Q 801	1	2SA838	TSTR:SI PNP	PC:250MW FT:300MHZ
Q 802	1	2SA838	TSTR:SI PNP	PC:250MW FT:300MHZ
Q 803	1	2SA838	TSTR:SI PNP	PC:250MW FT:300MHZ
Q 804	1	2SA838	TSTR:SI PNP	PC:250MW FT:300MHZ
Q 805	1	2SA838	TSTR:SI PNP	PC:250MW FT:300MHZ
Q 806	1	2SA838	TSTR:SI PNP	PC:250MW FT:300MHZ
Q 807	1	2SA914-RS	TSTR:SI PNP	PC:1W FT:200MHZ
Q 808	1	2SA914-RS	TSTR:SI PNP	PC:1W FT:200MHZ
Q 809	1	2SC2258	TSTR:SI NPN	PC:1W FT:100MHZ
Q 810	1	2SC2258	TSTR:SI NPN	PC:1W FT:100MHZ
Q 811	1	2SC1359-AB	TSTR:SI NPN	PC:250MW FT:300MHZ
Q 812	1	2SC1359-AB	TSTR:SI NPN	PC:250MW FT:300MHZ
Q 920	1	2SC1509-RS	TSTR:SI NPN	PC:750MW FT:120MHZ
Q 921	1	2SA777-RS	TSTR:SI PNP	PC:750MW FT:120MHZ
Q 927	1	2SC2258	TSTR:SI NPN	PC:1W FT:100MHZ
Q 1600	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q 1601	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q 1611	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q 1612	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ

V.H AMP DWG NO 4G204672

REF NO	QTY	PART NO	DESCRIPTION	
R 101	1	EVTR4SA00B14	R:VAR CARBON	10K OHM 20% 1/4W
R 102	1	ERD25TJ273V	R:FXD CARBON	27K OHM 5% 1/4W
R 103	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 104	1	ERO25CKF1502	R:FXD MET FLM	15K OHM 1% 1/4W
R 105	1	ERO25CKF1502	R:FXD MET FLM	15K OHM 1% 1/4W
R 106	1	ERD25TJ561V	R:FXD CARBON	560 OHM 5% 1/4W
R 110	1	ERD25TJ562V	R:FXD CARBON	5.6K OHM 5% 1/4W
R 111	1	ERD25TJ562V	R:FXD CARBON	5.6K OHM 5% 1/4W
R 116	1	SR19R101B	R:VAR COMP	100 OHM 25% 1/8W
R 117	1	ERO25CKF19R6	R:FXD MET FLM	19.6 OHM 1% 1/4W
R 118	1	ERO25CKF1540	R:FXD MET FLM	154 OHM 1% 1/4W
R 119	1	ERO25CKF1960	R:FXD MET FLM	196 OHM 1% 1/4W
R 120	1	ERO25CKF2741	R:FXD MET FLM	2.74K OHM 1% 1/4W
R 121	1	ERO25CKF2741	R:FXD MET FLM	2.74K OHM 1% 1/4W
R 123	1	ERD25TJ271V	R:FXD CARBON	270 OHM 5% 1/4W
R 124	1	ERD25TJ271V	R:FXD CARBON	270 OHM 5% 1/4W
R 125	1	ERD25TJ122V	R:FXD CARBON	1.2K OHM 5% 1/4W
R 126	1	ERD25TJ122V	R:FXD CARBON	1.2K OHM 5% 1/4W
R 127	1	ERD25TJ150V	R:FXD CARBON	15 OHM 5% 1/4W
R 128	1	ERD25TJ150V	R:FXD CARBON	15 OHM 5% 1/4W
R 130	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 131	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 132	1	ERD25TJ203V	R:FXD CARBON	20K OHM 5% 1/4W
R 133	1	ERD25TJ203V	R:FXD CARBON	20K OHM 5% 1/4W
R 134	1	SR19R101B	R:VAR COMP	100 OHM 25% 1/8W
R 135	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 136	1	ERD25TJ511V	R:FXD CARBON	510 OHM 5% 1/4W
R 137	1	ERD25TJ511V	R:FXD CARBON	510 OHM 5% 1/4W
R 138	1	ERO25CKF2210	R:FXD MET FLM	221 OHM 1% 1/4W
R 139	1	ERO25CKF2210	R:FXD MET FLM	221 OHM 1% 1/4W
R 140	1	ERO25CKF5620	R:FXD MET FLM	562 OHM 1% 1/4W
R 142	1	EVTR4SA00B24	R:VAR CARBON	20K OHM 20% 1/4W
R 145	1	ERD25TJ151V	R:FXD CARBON	150 OHM 5% 1/4W
R 145A	1	EVTR4SA00B52	R:VAR CARBON	500 OHM 20% 1/4W
R 146	1	SR19R101B	R:VAR COMP	100 OHM 25% 1/8W
R 149	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 154	1	EVKEUA320B14	R:VAR CARBON	10K OHM 20% 0.2W
R 157	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 158	1	ERD25TJ682V	R:FXD CARBON	6.8K OHM 5% 1/4W
R 159	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 170	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 171	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 174	1	ERD25TJ330V	R:FXD CARBON	33 OHM 5% 1/4W
R 178	1	ERD25TJ242V	R:FXD CARBON	2.4K OHM 5% 1/4W
R 179	1	EVTR4SA00B14	R:VAR CARBON	10K OHM 20% 1/4W

V.H AMP DWG NO 4G204672

REF	NO	QTY	PART NO	DESCRIPTION	
R	201	1	EVTR4SA00B14	R:VAR CARBON	10K OHM 20% 1/4W
R	202	1	ERD25TJ273V	R:FXD CARBON	27K OHM 5% 1/4W
R	203	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	204	1	ERO25CKF1502	R:FXD MET FLM	15K OHM 1% 1/4W
R	205	1	ERO25CKF1502	R:FXD MET FLM	15K OHM 1% 1/4W
R	206	1	ERD25TJ561V	R:FXD CARBON	560 OHM 5% 1/4W
R	210	1	ERD25TJ562V	R:FXD CARBON	5.6K OHM 5% 1/4W
R	211	1	ERD25TJ562V	R:FXD CARBON	5.6K OHM 5% 1/4W
R	216	1	SR19R101B	R:VAR COMP	100 OHM 25% 1/8W
R	217	1	ERO25CKF19R6	R:FXD MET FLM	19.6 OHM 1% 1/4W
R	218	1	ERO25CKF1540	R:FXD MET FLM	154 OHM 1% 1/4W
R	219	1	ERO25CKF1960	R:FXD MET FLM	196 OHM 1% 1/4W
R	220	1	ERO25CKF2741	R:FXD MET FLM	2.74K OHM 1% 1/4W
R	221	1	ERO25CKF2741	R:FXD MET FLM	2.74K OHM 1% 1/4W
R	223	1	ERD25TJ271V	R:FXD CARBON	270 OHM 5% 1/4W
R	224	1	ERD25TJ271V	R:FXD CARBON	270 OHM 5% 1/4W
R	225	1	ERD25TJ122V	R:FXD CARBON	1.2K OHM 5% 1/4W
R	226	1	ERD25TJ122V	R:FXD CARBON	1.2K OHM 5% 1/4W
R	227	1	ERD25TJ150V	R:FXD CARBON	15 OHM 5% 1/4W
R	228	1	ERD25TJ150V	R:FXD CARBON	15 OHM 5% 1/4W
R	230	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R	231	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R	232	1	ERD25TJ203V	R:FXD CARBON	20K OHM 5% 1/4W
R	233	1	ERD25TJ203V	R:FXD CARBON	20K OHM 5% 1/4W
R	234	1	SR19R101B	R:VAR COMP	100 OHM 25% 1/8W
R	235	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R	236	1	ERD25TJ511V	R:FXD CARBON	510 OHM 5% 1/4W
R	237	1	ERD25TJ511V	R:FXD CARBON	510 OHM 5% 1/4W
R	238	1	ERO25CKF2210	R:FXD MET FLM	221 OHM 1% 1/4W
R	239	1	ERO25CKF2210	R:FXD MET FLM	221 OHM 1% 1/4W
R	240	1	ERO25CKF5620	R:FXD MET FLM	562 OHM 1% 1/4W
R	242	1	EVTR4SA00B24	R:VAR CARBON	20K OHM 20% 1/4W
R	245	1	ERD25TJ151V	R:FXD CARBON	150 OHM 5% 1/4W
R	245A	1	EVTR4SA00B52	R:VAR CARBON	500 OHM 20% 1/4W
R	246	1	SR19R101B	R:VAR COMP	100 OHM 25% 1/8W
R	249	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	252	1	ERD25TJ682V	R:FXD CARBON	6.8K OHM 5% 1/4W
R	254	1	EVKEUA320B14	R:VAR CARBON	10K OHM 20% 0.2W
R	257	1	ERD25TJ682V	R:FXD CARBON	6.8K OHM 5% 1/4W
R	258	1	ERD25TJ153V	R:FXD CARBON	15K OHM 5% 1/4W
R	259	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R	263	1	ERD25TJ153V	R:FXD CARBON	15K OHM 5% 1/4W
R	264	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R	265	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R	266	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W

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REF NO	QTY	PART NO	DESCRIPTION	
R 270	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 271	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 274	1	ERD25TJ330V	R:FXD CARBON	33 OHM 5% 1/4W
R 278	1	ERD25TJ242V	R:FXD CARBON	2.4K OHM 5% 1/4W
R 279	1	EVTR4SA00B14	R:VAR CARBON	10K OHM 20% 1/4W
R 300	1	ERD25TJ242V	R:FXD CARBON	2.4K OHM 5% 1/4W
R 301	1	ERD25TJ242V	R:FXD CARBON	2.4K OHM 5% 1/4W
R 312	1	ERD25TJ181V	R:FXD CARBON	180 OHM 5% 1/4W
R 319	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R 330	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 331	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 332	1	ERD25TJ821V	R:FXD CARBON	820 OHM 5% 1/4W
R 333	1	EVTR4SA00B13	R:VAR CARBON	1K OHM 20% 1/4W
R 334	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 335	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 336	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 337	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 338	1	EVTR4SA00B52	R:VAR CARBON	500 OHM 20% 1/4W
R 339	1	ERD25TJ242V	R:FXD CARBON	2.4K OHM 5% 1/4W
R 340	1	ERD25TJ562V	R:FXD CARBON	5.6K OHM 5% 1/4W
R 350	1	ERD25TJ681V	R:FXD CARBON	680 OHM 5% 1/4W
R 351	1	ERD25TJ681V	R:FXD CARBON	680 OHM 5% 1/4W
R 352	1	ERD25TJ152V	R:FXD CARBON	1.5K OHM 5% 1/4W
R 353	1	ERD25TJ152V	R:FXD CARBON	1.5K OHM 5% 1/4W
R 354	1	ERD25TJ122V	R:FXD CARBON	1.2K OHM 5% 1/4W
R 356	1	ERD25TJ122V	R:FXD CARBON	1.2K OHM 5% 1/4W
R 358	1	ERD25TJ750V	R:FXD CARBON	75 OHM 5% 1/4W
R 359	1	ERD25TJ181V	R:FXD CARBON	180 OHM 5% 1/4W
R 370	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 371	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 372	1	EVTR4SA00B13	R:VAR CARBON	1K OHM 20% 1/4W
R 373	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R 374	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R 376	1	ERD25TJ4R7V	R:FXD CARBON	4.7 OHM 5% 1/4W
R 377	1	ERD25TJ4R7V	R:FXD CARBON	4.7 OHM 5% 1/4W
R 386	1	ERD25TJ4R7V	R:FXD CARBON	4.7 OHM 5% 1/4W
R 387	1	ERD25TJ4R7V	R:FXD CARBON	4.7 OHM 5% 1/4W
R 400	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 401	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 402	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 403	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 405	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 406	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 408	1	ERD25TJ682V	R:FXD CARBON	6.8K OHM 5% 1/4W
R 409	1	ERD25TJ333V	R:FXD CARBON	33K OHM 5% 1/4W

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REF	NO	QTY	PART NO	DESCRIPTION	
R	411	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R	412	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R	413	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R	415	1	ERD25TJ682V	R:FXD CARBON	6.8K OHM 5% 1/4W
R	417	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	418	1	ERD25TJ302V	R:FXD CARBON	3K OHM 5% 1/4W
R	419	1	ERD25TJ682V	R:FXD CARBON	6.8K OHM 5% 1/4W
R	420	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R	421	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R	422	1	ERD25TJ682V	R:FXD CARBON	6.8K OHM 5% 1/4W
R	423	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R	428	1	ERD25TJ682V	R:FXD CARBON	6.8K OHM 5% 1/4W
R	429	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R	431	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R	432	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R	433	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R	434	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R	435	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R	437	1	ERD25TJ682V	R:FXD CARBON	6.8K OHM 5% 1/4W
R	438	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R	439	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R	440	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	441	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4W
R	442	1	ERD25TJ362V	R:FXD CARBON	3.6K OHM 5% 1/4W
R	444	1	ERD25TJ333V	R:FXD CARBON	33K OHM 5% 1/4W
R	445	1	ERD25TJ333V	R:FXD CARBON	33K OHM 5% 1/4W
R	446	1	ERD25TJ333V	R:FXD CARBON	33K OHM 5% 1/4W
R	447	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R	448	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R	684	1	79R06	R:VAR CARBON	1K OHM 20% 1/10W
R	800	1	EWKENAK15B24	R:VAR CARBON	20K X2 OHM 20% 1/5W
R	801	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	802	1	ERD25TJ242V	R:FXD CARBON	2.4K OHM 5% 1/4W
R	804	1	ERD25TJ182V	R:FXD CARBON	1.8K OHM 5% 1/4W
R	805	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R	806	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R	807	1	ERD25TJ473V	R:FXD CARBON	47K OHM 5% 1/4W
R	808	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R	810	1	ERD25TJ272V	R:FXD CARBON	2.7K OHM 5% 1/4W
R	811	1	EVTR4SA00B13	R:VAR CARBON	1K OHM 20% 1/4W
R	812	1	ERD25TJ151V	R:FXD CARBON	150 OHM 5% 1/4W
R	813	1	SR19R101B	R:VAR COMP	100 OHM 25% 1/8W
R	814	1	ERD25TJ362V	R:FXD CARBON	3.6K OHM 5% 1/4W
R	815	1	ERD25TJ362V	R:FXD CARBON	3.6K OHM 5% 1/4W
R	817	1	ERD25TJ362V	R:FXD CARBON	3.6K OHM 5% 1/4W

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REF	NO	QTY	PART NO	DESCRIPTION	
R	818	1	ERD25TJ362V	R:FXD CARBON	3.6K OHM 5% 1/4W
R	819	1	ERD25TJ100V	R:FXD CARBON	10 OHM 5% 1/4W
R	820	1	ERD25TJ272V	R:FXD CARBON	2.7K OHM 5% 1/4W
R	821	1	EVTR4SA00B52	R:VAR CARBON	500 OHM 20% 1/4W
R	822	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	823	1	ERD25TJ272V	R:FXD CARBON	2.7K OHM 5% 1/4W
R	824	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	825	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	826	1	ERD25TJ154V	R:FXD CARBON	150K OHM 5% 1/4W
R	827	1	ERD25TJ154V	R:FXD CARBON	150K OHM 5% 1/4W
R	828	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R	829	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R	830	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R	831	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R	832	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	833	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	834	1	ERD25TJ362V	R:FXD CARBON	3.6K OHM 5% 1/4W
R	835	1	ERD25TJ362V	R:FXD CARBON	3.6K OHM 5% 1/4W
R	836	1	ERD25TJ822V	R:FXD CARBON	8.2K OHM 5% 1/4W
R	837	1	ERD25TJ822V	R:FXD CARBON	8.2K OHM 5% 1/4W
R	838	1	ERD50TJ273	R:FXD CARBON	27K OHM 5% 1/2W
R	839	1	ERD50TJ273	R:FXD CARBON	27K OHM 5% 1/2W
R	840	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	841	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	842	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	843	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	844	1	ERD25TJ823V	R:FXD CARBON	82K OHM 5% 1/4W
R	913	1	EWKENAK15B26	R:VAR CARBON	2M-X2 OHM 20% 1/
R	914	1	HMG12HJ755	R:FXD MET GRZ	7.5M OHM 5% 1/2W
R	920	1	EWKE2AK25B24	R:VAR CARBON	20K X2 OHM 20% 1
R	927	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	928	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4W
R	936	1	EWKENAK15B24	R:VAR CARBON	20K X2 OHM 20% 1
R	968	1	ERD25TJ561V	R:FXD CARBON	560 OHM 5% 1/4W
R	970	1	EWKENAK15B24	R:VAR CARBON	20K X2 OHM 20% 1
R	1600	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	1601	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	1611	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	1612	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	1613	1	ERD25TJ243V	R:FXD CARBON	24K OHM 5% 1/4W
R	1620	1	ERD25TJ333V	R:FXD CARBON	33K OHM 5% 1/4W
R	1621	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R	1630	1	ERD25TJ333V	R:FXD CARBON	33K OHM 5% 1/4W
R	1631	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R	1640	1	ERD25TJ621V	R:FXD CARBON	620 OHM 5% 1/4W

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REF NO	QTY	PART NO	DESCRIPTION	
R 1641	1	ERD25TJ621V	R:FXD CARBON	620 OHM 5% 1/4W
R 1651	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
U 112	1	EHM318A81	P5250A HI MIC	CH1 AMP
U 170	1	EHM213A83	P5250A HI MIC	V TRIGGER
U 212	1	EHM322A82	P5250A HI MIC	CH2 AMP
U 270	1	EHM213A83	P5250A HI MIC	V TRIGGER
U 301	1	EHM217A36A	P5230A HI MIC	PRE OUT.AMP
U 410	1	SN7476N	IC:TTL	DUAL J-K FLIP-FLOP
U 411	1	SN74LS00N	IC:TTL LS	QUAD 2-INPUT NAND GATE
U 412	1	SN74LS00N	IC:TTL LS	QUAD 2-INPUT NAND GATE
U 417	1	EHM213A43	P5230A HI MIC	V SECT
U 418	1	EHM213A43	P5230A HI MIC	V SECT
U 419	1	EHM213G12	P5230A HI MIC	V SECT OSC
U 811	1	EHM215A46A	P5230A HI MIC	H OUT AMP
VR 109	1	RD5.6EB3	DIODE:ZENER	5.7V 500MW
VR 209	1	RD5.6EB3	DIODE:ZENER	5.7V 500MW
VR 420	1	RD5.6EB3	DIODE:ZENER	5.7V 500MW

V OUT DWG NO 4G204673

REF NO	QTY	PART NO	DESCRIPTION	
	2	R9D	HEAT SINK	
C 460	1	ECV1ZW20X53T	C:VAR CER	20PF
C 460A	1	ECV1ZW70P32	C:VAR CER	70PF
C 460C	1	ECCW1H181K5	C:FXD CER TC	180PF +-10% 50V
C 460D	1	ECQM1H102KZ	C:FXD FLM	1000PF 10% 50V
C 460E	1	ECQM1H103KZ	C:FXD FLM	0.01UF 10% 50V
C 460F	1	ECQM1H104KZ	C:FXD FLM	0.1UF 10% 50V
C 460G	1	ECEA1CS101B	C:FXD AL ELECT	100UF +-20% 16V
C 460H	1	ECCW1H221K5	C:FXD CER TC	220PF +-10% 50V
C 465	1	ECKW1H102KB5	C:FXD CER HI-K	1000PF +-10% 50
C 466	1	ECKW1H102KB5	C:FXD CER HI-K	1000PF +-10% 50
C 470	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0% 5
C 471	1	ECKW1H103ZF5	C:FXD CER HI-K	10000PF +80-20% 5
C 472	1	ECKW1H103ZF5	C:FXD CER HI-K	10000PF +80-20% 5
C 480B	1	ECV1ZW70P32	C:VAR CER	70PF
C 485	1	ECKW1H102KB5	C:FXD CER HI-K	1000PF +-10% 50
C 486	1	ECKW1H102KB5	C:FXD CER HI-K	1000PF +-10% 50
C 499	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0% 5
C 705	1	ECQP1104GZ	C:FXD FLM	0.1UF 2% 100V
C 706	1	ECQM1H224KZ	C:FXD FLM	0.22UF 10% 50V
C 708	1	ECQE1106KZ	C:FXD FLM	10UF 10% 100V
C 709	1	ECEA1HS4R7B	C:FXD AL ELECT	4.7UF +-20% 50V
C 720	1	ECEA1CS100B	C:FXD AL ELECT	10UF +-20% 16V
C 722	1	ECEA1CS100B	C:FXD AL ELECT	10UF +-20% 16V
C 774	1	ECQP1104GZ	C:FXD FLM	0.1UF 2% 100V
C 1400	1	ECQE1106JN	C:FXD FLM	10UF 5% 100V
CR 700	1	MA150TA	DIODE:SI	100MA 35V
CR 701	1	MA150TA	DIODE:SI	100MA 35V
CR 702	1	MA150TA	DIODE:SI	100MA 35V
CR 703	1	MA150TA	DIODE:SI	100MA 35V
CR 704	1	MA150TA	DIODE:SI	100MA 35V
CR 705	1	MA150TA	DIODE:SI	100MA 35V
CR 706	1	MA150TA	DIODE:SI	100MA 35V
CR 707	1	MA150TA	DIODE:SI	100MA 35V
CR 708	1	MA150TA	DIODE:SI	100MA 35V
CR 710	1	MA150TA	DIODE:SI	100MA 35V
CR 711	1	MA150TA	DIODE:SI	100MA 35V
CR 762	1	MA150TA	DIODE:SI	100MA 35V
CR 1401	1	MA150TA	DIODE:SI	100MA 35V
CR 1402	1	MA150TA	DIODE:SI	100MA 35V
E 700	1	1G400058-7	P5250A PC BOARD	V OUT

V OUT DWG NO 4G204673

REF	NO	QTY	PART NO	DESCRIPTION	
J	451	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
J	700	1	EMCS1050	CONNECTOR	10P L=500MM
J	702	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
J	703	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
J	704	1	EMCS1050	CONNECTOR	10P L=500MM
J	705	1	EMCS1050	CONNECTOR	10P L=500MM
L	475	1	4G431146	P5510A COIL	PEAKING
L	476	1	4G431146	P5510A COIL	PEAKING
L	493	1	TP0206L1R8K	COIL:CHOKE	1.8UH 10%
L	496	1	TP0206L1R8K	COIL:CHOKE	1.8UH 10%
P	713	1	163740-3	CONNECTOR:PIN	CIS 5P 2.5PITCH
P	714	1	163740-8	CONNECTOR:PIN	CIS 10P 2.5PITCH
Q	460	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	461	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	470	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	471	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	480	1	2SC1252N	TSTR:SI NPN	PC:800MW FT:1700MHZ
Q	481	1	2SC1252N	TSTR:SI NPN	PC:800MW FT:1700MHZ
Q	490	1	2SC1252N	TSTR:SI NPN	PC:800MW FT:1700MHZ
Q	491	1	2SC1252N	TSTR:SI NPN	PC:800MW FT:1700MHZ
Q	700	1	2SC828ATA-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
Q	740	1	2SC1509-RS	TSTR:SI NPN	PC:750MW FT:120MHZ
Q	741	1	2SC1509-RS	TSTR:SI NPN	PC:750MW FT:120MHZ
Q	1400	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
R	450	1	ERO25CKF90R9	R:FXD MET FLM	90.9 OHM 1% 1/4W
R	451	1	ERO25CKF90R9	R:FXD MET FLM	90.9 OHM 1% 1/4W
R	452	1	ERD25TJ100V	R:FXD CARBON	10 OHM 5% 1/4W
R	453	1	ERD25TJ100V	R:FXD CARBON	10 OHM 5% 1/4W
R	455	1	ERD25TJ750V	R:FXD CARBON	75 OHM 5% 1/4W
R	456	1	ERD25TJ750V	R:FXD CARBON	75 OHM 5% 1/4W
R	460	1	ERD25TJ510V	R:FXD CARBON	51 OHM 5% 1/4W
R	460A	1	EVTR4SA00B53	R:VAR CARBON	5K OHM 20% 1/4W
R	460C	1	EVTR4SA00B54	R:VAR CARBON	50K OHM 20% 1/4W
R	460D	1	EVTR4SA00B54	R:VAR CARBON	50K OHM 20% 1/4W
R	460E	1	EVTR4SA00B54	R:VAR CARBON	50K OHM 20% 1/4W
R	460F	1	EVTR4SA00B54	R:VAR CARBON	50K OHM 20% 1/4W
R	460G	1	ERD25TJ302V	R:FXD CARBON	3K OHM 5% 1/4W
R	461	1	ERD25TJ122V	R:FXD CARBON	1.2K OHM 5% 1/4W
R	462	1	ERD25TJ122V	R:FXD CARBON	1.2K OHM 5% 1/4W

V OUT DWG NO 4G204673

REF	NO	QTY	PART NO	DESCRIPTION	
R	464	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	465	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	466	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R	467	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R	470	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R	471	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R	472	1	ERD25TJ682V	R:FXD CARBON	6.8K OHM 5% 1/4
R	473	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4
R	475	1	ERO25CKF1000	R:FXD MET FLM	100 OHM 1% 1/4W
R	476	1	ERO25CKF1000	R:FXD MET FLM	100 OHM 1% 1/4W
R	478	1	ERO25CKF2740	R:FXD MET FLM	274 OHM 1% 1/4W
R	480	1	ERD25TJ510V	R:FXD CARBON	51 OHM 5% 1/4W
R	481	1	ERG1ANJ121	R:FXD MET OXD	120 OHM 5% 1W
R	482	1	ERG1ANJ121	R:FXD MET OXD	120 OHM 5% 1W
R	483	1	ERD25TJ4R7V	R:FXD CARBON	4.7 OHM 5% 1/4W
R	484	1	EVTR4SA00B13	R:VAR CARBON	1K OHM 20% 1/4W
R	485	1	ERG1ANJ680	R:FXD MET OXD	68 OHM 5% 1W
R	486	1	ERG1ANJ680	R:FXD MET OXD	68 OHM 5% 1W
R	489	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	490	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	491	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	493	1	ERG3ANJ391	R:FXD MET OXD	390 OHM 5% 3W
R	494	1	ERG3ANJ221	R:FXD MET OXD	220 OHM 5% 3W
R	495	1	ERG3ANJ221	R:FXD MET OXD	220 OHM 5% 3W
R	496	1	ERG3ANJ391	R:FXD MET OXD	390 OHM 5% 3W
R	499	1	ERG1ANJ560	R:FXD MET OXD	56 OHM 5% 1W
R	602	1	ERD25TJ181V	R:FXD CARBON	180 OHM 5% 1/4W
R	603	1	ERD25TJ151V	R:FXD CARBON	150 OHM 5% 1/4W
R	700	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4
R	701	1	ERD25TJ100V	R:FXD CARBON	10 OHM 5% 1/4W
R	703	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R	712	1	SR29R103B	R:VAR COMP	10K OHM 25% 1/8
R	713	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4
R	714	1	SR29R103B	R:VAR COMP	10K OHM 25% 1/8
R	720	1	ERD25TJ473V	R:FXD CARBON	47K OHM 5% 1/4W
R	721	1	ERD25TJ912V	R:FXD CARBON	9.1K OHM 5% 1/4
R	724	1	ERD25TJ394V	R:FXD CARBON	390K OHM 5% 1/4
R	725	1	ERO25CKF4871	R:FXD MET FLM	4.87K OHM 1% 1/4
R	726	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4
R	727	1	ERO25CKF9761	R:FXD MET FLM	9.76K OHM 1% 1/4
R	728	1	ERO25CKF2492	R:FXD MET FLM	24.9K OHM 1% 1/4
R	729	1	ERO25CKF4992	R:FXD MET FLM	49.9K OHM 1% 1/4
R	730	1	ERO25CKF1003	R:FXD MET FLM	100K OHM 1% 1/4
R	731	1	ERO25CKF2493	R:FXD MET FLM	249K OHM 1% 1/4W
R	732	1	ERO50CKF4993	R:FXD MET FLM	499K OHM 1% 1/2W

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REF	NO	QTY	PART NO	DESCRIPTION	
R	733	1	ERO50CKF1004	R:FXD MET FLM	1M OHM 1% 1/2W
R	734	1	ERL50CKF2494	R:FXD MET GRZ	2.49M OHM 1% 1/2W
R	740	1	ERD50TJ222	R:FXD CARBON	2.2K OHM 5% 1/2W
R	744	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4W
R	746	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R	747	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4W
R	748	1	ERD50TJ222	R:FXD CARBON	2.2K OHM 5% 1/2W
R	749	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R	750	1	ERD25TJ433V	R:FXD CARBON	43K OHM 5% 1/4W
R	764	1	ERD25TJ243V	R:FXD CARBON	24K OHM 5% 1/4W
R	765	1	ERD25TJ473V	R:FXD CARBON	47K OHM 5% 1/4W
R	766	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	767	1	SR29R103B	R:VAR COMP	10K OHM 25% 1/8W
R	768	1	SR29R103B	R:VAR COMP	10K OHM 25% 1/8W
R	769	1	ERD25TJ4R7V	R:FXD CARBON	4.7 OHM 5% 1/4W
R	1401	1	SR29R103B	R:VAR COMP	10K OHM 25% 1/8W
R	1402	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	1405	1	ERO25CKF4871	R:FXD MET FLM	4.87K OHM 1% 1/4W
R	1406	1	ERO25CKF9761	R:FXD MET FLM	9.76K OHM 1% 1/4W
R	1407	1	ERO25CKF2492	R:FXD MET FLM	24.9K OHM 1% 1/4W
R	1408	1	ERO25CKF4992	R:FXD MET FLM	49.9K OHM 1% 1/4W
R	1409	1	ERO25CKF1003	R:FXD MET FLM	100K OHM 1% 1/4W
R	1410	1	ERO25CKF2493	R:FXD MET FLM	249K OHM 1% 1/4W
R	1411	1	ERO50CKF4993	R:FXD MET FLM	499K OHM 1% 1/2W
R	1412	1	ERO50CKF1004	R:FXD MET FLM	1M OHM 1% 1/2W
R	1413	1	ERL50CKF2494	R:FXD MET GRZ	2.49M OHM 1% 1/2W
R	1415	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4W
R	1416	1	ERD25TJ394V	R:FXD CARBON	390K OHM 5% 1/4W
S	700	1	3G410250	P5730A ROTARY SW	A SWEEP
S	702	1	3G410251	P5730A ROTARY SW	B SWEEP
U	711	1	EHM216E34	P5230A HI MIC	A SWEEP TIME
U	712	1	EHM215E33	P5230A HI MIC	A SWEEP TIME
VR	1400	1	RD8.2EB3	DIODE:ZENER	8.2V 500MW

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REF NO	QTY	PART NO	DESCRIPTION	
C 501	1	ECV1ZW10X44	C:VAR CER	10PF
C 502	1	MD12J473M	C:FXD FLM	0.047UF 20% 63C
C 503	1	ECCR1H101KC	C:FXD CER TC	100PF +-10% 50V
C 504	1	ECKR1H102KB	C:FXD CER HI-K	1000PF +-10% 5C
C 506	1	ECKR1H102KB	C:FXD CER HI-K	1000PF +-10% 5C
C 517	1	ECEA1CS470B	C:FXD AL ELECT	47UF +-20% 16V
C 529	1	ECEA1CS100B	C:FXD AL ELECT	10UF +-20% 16V
C 535	1	ECEA1CS470B	C:FXD AL ELECT	47UF +-20% 16V
C 536	1	ECEA1VS100	C:FXD AL ELECT	10UF +-20% 35V
C 542	1	ECEA1CS100B	C:FXD AL ELECT	10UF +-20% 16V
C 543	1	ECEA1CS100B	C:FXD AL ELECT	10UF +-20% 16V
C 546	1	ECKW1H473ZF5	C:FXD CER HI-K	47000PF +80-20%
C 548	1	ECKR1H103ZF	C:FXD CER HI-K	10000PF +80% -2
C 554	1	ECCR1H121K	C:FXD CER TC	120PF +-10% 50V
C 567	1	ECCR1H471K	C:FXD CER TC	470PF +-10% 50V
C 575	1	ECKR1H103ZF	C:FXD CER HI-K	10000PF +80% -2
C 588	1	ECCR1H101KC	C:FXD CER TC	100PF +-10% 50V
C 601	1	ECEA1CS100B	C:FXD AL ELECT	10UF +-20% 16V
C 602	1	ECEA1CS100B	C:FXD AL ELECT	10UF +-20% 16V
C 603	1	ECEA1CS100B	C:FXD AL ELECT	10UF +-20% 16V
C 604	1	ECEA1CS100B	C:FXD AL ELECT	10UF +-20% 16V
C 607	1	ECKR1H103ZF	C:FXD CER HI-K	10000PF +80% -2
C 608	1	ECKR1H103ZF	C:FXD CER HI-K	10000PF +80% -2
C 609	1	ECKR1H103ZF	C:FXD CER HI-K	10000PF +80% -2
C 610	1	ECEA1HS4R7B	C:FXD AL ELECT	4.7UF +-20% 50V
C 611	1	ECKR1H681KB	C:FXD CER HI-K	680PF +-10% 50V
C 616	1	ECCR1H150K	C:FXD CER TC	15PF +-10% 50V
C 620	1	ECCR1H150K	C:FXD CER TC	15PF +-10% 50V
C 622	1	ECKW1H473ZF5	C:FXD CER HI-K	47000PF +80-20%
C 625	1	ECQP1102FZ	C:FXD FLM	1000PF 1% 100V
C 631	1	ECKR1H103ZF	C:FXD CER HI-K	10000PF +80% -2
C 632	1	ECKR1H103ZF	C:FXD CER HI-K	10000PF +80% -2
C 633	1	ECKR1H103ZF	C:FXD CER HI-K	10000PF +80% -2
C 640	1	ECEA1CS100B	C:FXD AL ELECT	10UF +-20% 16V
C 641	1	ECEA1CS100B	C:FXD AL ELECT	10UF +-20% 16V
C 665	1	ECQP1102FZ	C:FXD FLM	1000PF 1% 100V
C 670	1	ECCR1H181K	C:FXD CER TC	180PF +-10% 50V
C 671	1	ECEA1CS100B	C:FXD AL ELECT	10UF +-20% 16V
C 675	1	ECEA1CS100B	C:FXD AL ELECT	10UF +-20% 16V
C 680	1	ECCR1H220K	C:FXD CER TC	22PF +-10% 50V
C 681	1	ECCR1H220K	C:FXD CER TC	22PF +-10% 50V
C 686	1	ECCR1H470K	C:FXD CER TC	47PF +-10% 50V
C 860	1	ECQM1H103KZ	C:FXD FLM	0.01UF 10% 50V
C 861	1	ECQM1H103KZ	C:FXD FLM	0.01UF 10% 50V
C 862	1	ECEA1CS221	C:FXD AL ELECT	220UF +-20% 16V

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REF NO	QTY	PART NO	DESCRIPTION	
C 1502	1	ECCR1H181K	C:FXD CER TC	180PF +-10% 50V SL
C 1503	1	ECCR1H150K	C:FXD CER TC	15PF +-10% 50V SL
CR 500	1	MA150TA	DIODE:SI	100MA 35V
CR 501	1	MA150TA	DIODE:SI	100MA 35V
CR 502	1	MA150TA	DIODE:SI	100MA 35V
CR 503	1	MA150TA	DIODE:SI	100MA 35V
CR 504	1	MA150TA	DIODE:SI	100MA 35V
CR 507	1	MA150TA	DIODE:SI	100MA 35V
CR 510	1	MA150TA	DIODE:SI	100MA 35V
CR 511	1	MA150TA	DIODE:SI	100MA 35V
CR 512	1	MA150TA	DIODE:SI	100MA 35V
CR 513	1	MA150TA	DIODE:SI	100MA 35V
CR 520	1	MA150TA	DIODE:SI	100MA 35V
CR 521	1	MA150TA	DIODE:SI	100MA 35V
CR 541	1	MA150TA	DIODE:SI	100MA 35V
CR 570	1	MA150TA	DIODE:SI	100MA 35V
CR 571	1	MA150TA	DIODE:SI	100MA 35V
CR 572	1	MA150TA	DIODE:SI	100MA 35V
CR 573	1	MA150TA	DIODE:SI	100MA 35V
CR 603	1	MA150TA	DIODE:SI	100MA 35V
CR 605	1	MA150TA	DIODE:SI	100MA 35V
CR 606	1	MA150TA	DIODE:SI	100MA 35V
CR 607	1	MA150TA	DIODE:SI	100MA 35V
CR 608	1	MA150TA	DIODE:SI	100MA 35V
CR 609	1	MA150TA	DIODE:SI	100MA 35V
CR 610	1	MA150TA	DIODE:SI	100MA 35V
CR 611	1	MA150TA	DIODE:SI	100MA 35V
CR 612	1	MA150TA	DIODE:SI	100MA 35V
CR 613	1	MA150TA	DIODE:SI	100MA 35V
CR 614	1	MA150TA	DIODE:SI	100MA 35V
CR 615	1	MA150TA	DIODE:SI	100MA 35V
CR 616	1	MA150TA	DIODE:SI	100MA 35V
CR 617	1	MA150TA	DIODE:SI	100MA 35V
CR 634	1	MA150TA	DIODE:SI	100MA 35V
CR 635	1	MA150TA	DIODE:SI	100MA 35V
CR 645	1	MA150TA	DIODE:SI	100MA 35V
CR 646	1	MA150TA	DIODE:SI	100MA 35V
CR 656	1	MA150TA	DIODE:SI	100MA 35V
CR 672	1	MA150TA	DIODE:SI	100MA 35V
CR 691	1	MA150TA	DIODE:SI	100MA 35V
CR 692	1	MA150TA	DIODE:SI	100MA 35V
CR 693	1	MA150TA	DIODE:SI	100MA 35V

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REF NO	QTY	PART NO	DESCRIPTION	
CR 694	1	MA150TA	DIODE:SI	100MA 35V
CR 695	1	MA150TA	DIODE:SI	100MA 35V
CR 1501	1	MA150TA	DIODE:SI	100MA 35V
DS 691	1	SG203DA	LED	GREEN
DS 991	1	SY403DA	LED	UMBER
E 500	1	1G400059-6	P5250A PC BOARD	TRIGGER SWEEP
J 500	1	EMCS1050	CONNECTOR	10P L=500MM
J 501	1	163680-3	CONNECTOR	CIS 5P 2.5PITCH
J 516	1	65507-115	CONNECTOR:PIN	15P
J 600	1	EMCS1050	CONNECTOR	10P L=500MM
J 601	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
J 602	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
J 603	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
J 604	1	EMCS1050	CONNECTOR	10P L=500MM
J 604	1	M3310P01	CONNECTOR:PIN	10P STRAIGHT
J 605	1	EMCS1050	CONNECTOR	10P L=500MM
J 606	1	EMCS1050	CONNECTOR	10P L=500MM
J 706	1	EMCS1050	CONNECTOR	10P L=500MM
J 713	1	163683-3	CONNECTOR:PIN	CIS 5P 2.5PITCH
J 714	1	163683-8	CONNECTOR:PIN	CIS 10P 2.5PITCH
J 720	1	163683-1	CONNECTOR:PIN	CIS 3P 2.5PITCH
J 970	1	163683-1	CONNECTOR:PIN	CIS 3P 2.5PITCH
K 530	1	AE5343	REED RELAY	12V 1A-20VDC 1PDT
Q 500	1	2SC1215TA	TSTR:SI NPN	PC:200MW FT:1200M
Q 501	1	2SK30A-GR	TSTR:FET	PC:100MW
Q 502	1	2SC1215TA	TSTR:SI NPN	PC:200MW FT:1200M
Q 507	1	2N3906	TSTR:SI PNP	PC:300MW FT:250MH
Q 508	1	2SC1215TA	TSTR:SI NPN	PC:200MW FT:1200M
Q 597	1	2SC1215TA	TSTR:SI NPN	PC:200MW FT:1200M
Q 600	1	2SC2901	TSTR:SI NPN	PC:600MW FT:750MH
Q 601	1	2SC2901	TSTR:SI NPN	PC:600MW FT:750MH
Q 602	1	2SA564A-RS2	TSTR:SI PNP	SELECT 4G461701
Q *602	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 604	1	2SC1359TA-AB	TSTR:SI NPN	PC:250MW FT:300MH
Q 605	1	2SA838TA	TSTR:SI PNP	PC:250MW FT:300MH
Q 606	1	2SA838TA	TSTR:SI PNP	PC:250MW FT:300MH
Q 607	1	2SC1359TA-AB	TSTR:SI NPN	PC:250MW FT:300MH
Q 608	1	2SC1359TA-AB	TSTR:SI NPN	PC:250MW FT:300MH

SWEEP DWG NO 4G204674

REF NO	QTY	PART NO	DESCRIPTION	
Q 609	1	2SA838TA	TSTR:SI PNP	PC:250MW FT:300MHZ
Q 610	1	2SC2901	TSTR:SI NPN	PC:600MW FT:750MHZ
Q 611	1	2SC2901	TSTR:SI NPN	PC:600MW FT:750MHZ
Q 612	1	2SA564A-RS2	TSTR:SI PNP	SELECT 4G461701
Q *612	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 614	1	2SC1359TA-AB	TSTR:SI NPN	PC:250MW FT:300MHZ
Q 648	1	2SC1359TA-AB	TSTR:SI NPN	PC:250MW FT:300MHZ
Q 694	1	2SC1359TA-AB	TSTR:SI NPN	PC:250MW FT:300MHZ
Q 695	1	2SC1359TA-AB	TSTR:SI NPN	PC:250MW FT:300MHZ
Q 696	1	2SC1359TA-AB	TSTR:SI NPN	PC:250MW FT:300MHZ
Q 860	1	2SA564ATA-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 861	1	2SA564ATA-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 862	1	2SA564ATA-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 1500	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
R 503	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R 504	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R 505	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 506	1	ERD50TJ104	R:FXD CARBON	100K OHM 5% 1/2W
R 507	1	ERD50TJ105	R:FXD CARBON	1M OHM 5% 1/2W
R 508	1	ERD25TJ511V	R:FXD CARBON	510 OHM 5% 1/4W
R 509	1	ERD25TJ682V	R:FXD CARBON	6.8K OHM 5% 1/4W
R 510	1	ERD25TJ100V	R:FXD CARBON	10 OHM 5% 1/4W
R 511	1	ERD25TJ100V	R:FXD CARBON	10 OHM 5% 1/4W
R 512	1	EWKZ60Z20Z30	R:VAR CARBON	100K-20K OHM 20% 1/10W
R 513	1	ERD25TJ622V	R:FXD CARBON	6.2K OHM 5% 1/4W
R 515	1	EVTR4SA00B14	R:VAR CARBON	10K OHM 20% 1/4W
R 516	1	ERD25TJ272V	R:FXD CARBON	2.7K OHM 5% 1/4W
R 519	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R 520	1	ERD25TJ152V	R:FXD CARBON	1.5K OHM 5% 1/4W
R 521	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R 526	1	ERD25TJ152V	R:FXD CARBON	1.5K OHM 5% 1/4W
R 529	1	ERD25TJ182V	R:FXD CARBON	1.8K OHM 5% 1/4W
R 531	1	EVTR4SA00B24	R:VAR CARBON	20K OHM 20% 1/4W
R 532	1	ERD25TJ682V	R:FXD CARBON	6.8K OHM 5% 1/4W
R 533	1	ERD25TJ122V	R:FXD CARBON	1.2K OHM 5% 1/4W
R 534	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 535	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 536	1	ERD25TJ4R7V	R:FXD CARBON	4.7 OHM 5% 1/4W
R 537	1	ERD25TJ752V	R:FXD CARBON	7.5K OHM 5% 1/4W
R 538	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 539	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 540	1	EVTR4SA00B13	R:VAR CARBON	1K OHM 20% 1/4W
R 542	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 543	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W

SWEEP DWG NO 4G204674

REF	NO	QTY	PART NO	DESCRIPTION	
R	545	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R	547	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R	548	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R	549	1	ERD25TJ751V	R:FXD CARBON	750 OHM 5% 1/4W
R	567	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	570	1	EVTR4SA00B14	R:VAR CARBON	10K OHM 20% 1/4W
R	571	1	ERD25TJ272V	R:FXD CARBON	2.7K OHM 5% 1/4W
R	572	1	EWKZ40Z11B24	R:VAR CARBON	20K X2 OHM 20% 1/
R	573	1	ERD25TJ622V	R:FXD CARBON	6.2K OHM 5% 1/4W
R	574	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R	575	1	ERD25TJ330V	R:FXD CARBON	33 OHM 5% 1/4W
R	577	1	ERD25TJ362V	R:FXD CARBON	3.6K OHM 5% 1/4W
R	578	1	ERD25TJ362V	R:FXD CARBON	3.6K OHM 5% 1/4W
R	579	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R	586	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R	587	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R	588	1	ERD25TJ820V	R:FXD CARBON	82 OHM 5% 1/4W
R	591	1	ERD25TJ182V	R:FXD CARBON	1.8K OHM 5% 1/4W
R	592	1	ERD25TJ682V	R:FXD CARBON	6.8K OHM 5% 1/4W
R	593	1	ERD25TJ122V	R:FXD CARBON	1.2K OHM 5% 1/4W
R	596	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R	597	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	598	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R	599	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R	600	1	ERD25TJ241V	R:FXD CARBON	240 OHM 5% 1/4W
R	601	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R	604	1	ERD25TJ4R7V	R:FXD CARBON	4.7 OHM 5% 1/4W
R	605	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R	606	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R	610	1	ERD25TJ473V	R:FXD CARBON	47K OHM 5% 1/4W
R	611	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	613	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R	614	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R	615	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	616	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R	617	1	ERD25TJ753V	R:FXD CARBON	75K OHM 5% 1/4W
R	618	1	ERD25TJ682V	R:FXD CARBON	6.8K OHM 5% 1/4W
R	619	1	ERD25TJ512V	R:FXD CARBON	5.1K OHM 5% 1/4W
R	620	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R	621	1	ERD25TJ753V	R:FXD CARBON	75K OHM 5% 1/4W
R	622	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R	623	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R	624	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R	627	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	628	1	ERD25TJ473V	R:FXD CARBON	47K OHM 5% 1/4W

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REF NO	QTY	PART NO	DESCRIPTION	
R 629	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 630	1	ERO25CKF5621	R:FXD MET FLM	5.62K OHM 1% 1/4W
R 632	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 633	1	ERD25TJ912V	R:FXD CARBON	9.1K OHM 5% 1/4W
R 634	1	ERD25TJ912V	R:FXD CARBON	9.1K OHM 5% 1/4W
R 636	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 638	1	ERD25TJ113V	R:FXD CARBON	11K OHM 5% 1/4W
R 639	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 640	1	EVTR4SA00B13	R:VAR CARBON	1K OHM 20% 1/4W
R 641	1	ERD25TJ272V	R:FXD CARBON	2.7K OHM 5% 1/4W
R 643	1	ERD25TJ152V	R:FXD CARBON	1.5K OHM 5% 1/4W
R 644	1	EVTR4SA00B52	R:VAR CARBON	500 OHM 20% 1/4W
R 645	1	ERD25TJ271V	R:FXD CARBON	270 OHM 5% 1/4W
R 646	1	ERD25TJ511V	R:FXD CARBON	510 OHM 5% 1/4W
R 647	1	ERD25TJ511V	R:FXD CARBON	510 OHM 5% 1/4W
R 648	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 649	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 650	1	ERD25TJ182V	R:FXD CARBON	1.8K OHM 5% 1/4W
R 651	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R 652	1	ERD25TJ203V	R:FXD CARBON	20K OHM 5% 1/4W
R 654	1	ERD25TJ203V	R:FXD CARBON	20K OHM 5% 1/4W
R 655	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 656	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R 657	1	ERD25TJ753V	R:FXD CARBON	75K OHM 5% 1/4W
R 658	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R 659	1	ERD25TJ753V	R:FXD CARBON	75K OHM 5% 1/4W
R 660	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 663	1	ERO25CKF5621	R:FXD MET FLM	5.62K OHM 1% 1/4W
R 664	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 665	1	ERD25TJ100V	R:FXD CARBON	10 OHM 5% 1/4W
R 666	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R 668	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 669	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 670	1	ERD25TJ241V	R:FXD CARBON	240 OHM 5% 1/4W
R 671	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R 672	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 673	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 674	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 675	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 678	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 680	1	ERD25TJ100V	R:FXD CARBON	10 OHM 5% 1/4W
R 681	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 682	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 686	1	ERD25TJ182V	R:FXD CARBON	1.8K OHM 5% 1/4W
R 692	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W

SWEEP DWG NO 4G204674

REF NO	QTY	PART NO	DESCRIPTION	
R 693	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 694	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R 695	1	ERD25TJ562V	R:FXD CARBON	5.6K OHM 5% 1/4W
R 696	1	ERD25TJ333V	R:FXD CARBON	33K OHM 5% 1/4W
R 697	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R 698	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 745	1	EWKZ41Z06B24	R:VAR CARBON	20K X2 OHM 20% 1/
R 860	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R 861	1	ERD25TJ823V	R:FXD CARBON	82K OHM 5% 1/4W
R 862	1	ERD25TJ823V	R:FXD CARBON	82K OHM 5% 1/4W
R 863	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R 864	1	ERD25TJ4R7V	R:FXD CARBON	4.7 OHM 5% 1/4W
R 865	1	EVMQ0GA01B52	R:VAR CERMET	500 OHM 20%
R 866	1	ERD25TJ202V	R:FXD CARBON	2K OHM 5% 1/4W
R 867	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 868	1	ERD25TJ273V	R:FXD CARBON	27K OHM 5% 1/4W
R 869	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 991	1	ERD50TJ102	R:FXD CARBON	1K OHM 5% 1/2W
R 1501	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 1502	1	ERD25TJ151V	R:FXD CARBON	150 OHM 5% 1/4W
R 1503	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R 1504	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R 1506	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 1510	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 1510	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
S 301	1	79S32	P5230A LEVER SW	CH SELECT
S 500	1	77S55	LEVER SW	SLR02304
S 501	1	79S32	P5230A LEVER SW	CH SELECT
S 600	1	4G410460	P5503A PUSHB SW	SWEEP MODE
S 601	1	4G410525	P5230A PUSHB SW	DISPLAY MODE
U 515	1	EHM320A44	P5230A HI MIC	TRIGGER AMP
U 517	1	EHM320A44	P5230A HI MIC	TRIGGER AMP
U 600	1	SN74LS00N	IC:TTL LS	QUAD 2-INPUT NAN
U 601	1	SN74S74N	IC:TTL S	DUAL D-TYPE FLIP-
U 602	1	SN74107N	IC:TTL	DUAL J-K FLIO-FL
U 603	1	SN74LS123N	IC:TTL LS	DUAL MONO MULTIV
U 604	1	SN74LS132N	IC:TTL LS	QUAD 2-IN NAND S
U 605	1	SN74LS74AN	IC:TTL LS	DUAL D-TYPE FLIP-
U 606	1	SN74LS00N	IC:TTL LS	QUAD 2-INPUT NAN
U 607	1	SN74LS132N	IC:TTL LS	QUAD 2-IN NAND S
U 613	1	EHM215S14A	P5230A HI MIC	GATE
U 615	1	EHM210A45A	P5230A HI MIC	DARLINTON
U 616	1	EHM210A45A	P5230A HI MIC	DARLINTON
U 618	1	EHM215S14A	P5230A HI MIC	GATE

SWEEP DWG NO 4G204674

REF NO	QTY	PART NO	DESCRIPTION
XV 910	1	YEFK04189	LAMP SOCKET
XV 911	1	YEFK04189	LAMP SOCKET
XV 912	1	YEFK04189	LAMP SOCKET

PWR SPLY DWG NO 4G204675

REF NO	QTY	PART NO	DESCRIPTION	
C 900	1	ECQM1H683KZ	C:FXD FLM	0.068UF 10% 50V
C 901	1	D6300YZ472P2	C:FXD CER HI-K	4700PF +100%-0%
C 902	1	ECQM1H223KZ	C:FXD FLM	0.022UF 10% 50V
C 903	1	ECEA1VS471	C:FXD AL ELECT	470UF +-20% 35V
C 904	1	ECQM1154KZ	C:FXD FLM	0.15UF 10% 100V
C 912	1	D6300YZ472P2	C:FXD CER HI-K	4700PF +100%-0%
C 913	1	D6300YZ472P2	C:FXD CER HI-K	4700PF +100%-0%
C 914	1	D6300YZ472P2	C:FXD CER HI-K	4700PF +100%-0%
C 915	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0%
C 916	1	D6300YZ472P2	C:FXD CER HI-K	4700PF +100%-0%
C 918	1	D6300YZ472P2	C:FXD CER HI-K	4700PF +100%-0%
C 919	1	D6300YZ472P2	C:FXD CER HI-K	4700PF +100%-0%
C 921	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0%
C 922	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0%
C 927	1	ECCW2H060DC	C:FXD CER TC	6PF +-0.5PF 500V
C 928	1	ECKW1H102KB5	C:FXD CER HI-K	1000PF +-10% 50V
C 930	1	ECKW2H102MD	C:FXD CER HI-K	1000PF +-20% 50C
C 931	1	ECCW2H020C	C:FXD CER TC	2PF +-0.25PF 50C
C 932	1	ECCW2H020C	C:FXD CER TC	2PF +-0.25PF 50C
C 933	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0%
C 934	1	ECV1ZW04X53T	C:VAR CER	4PF
C 940	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0%
C 946	1	ECKW1H103ZF5	C:FXD CER HI-K	10000PF +80-20%
C 951	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0%
C 960	1	ECKD3F102MB	C:FXD CER HI-K	1000PF +-20% 3K
C 969	1	ECEA1HS4R7	C:FXD AL ELECT	4.7UF +-20% 50V
C 972	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0%
C 973	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0%
C 974	1	ECEA2CS101	C:FXD AL ELECT	100UF +30%-10%
C 975	1	ECKW2H102MD	C:FXD CER HI-K	1000PF +-20% 50
C 979	1	ECEA2CS4R7	C:FXD AL ELECT	4.7UF +30%-10%
C 980	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0%
C 981	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0%
C 982	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0%
C 983	1	ECEA2CS010	C:FXD AL ELECT	1UF +30%-10% 16
C 984	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 985	1	ECET16R103SW	C:FXD AL ELECT	10000UF +30%-10
C 986	1	ECET35R472SW	C:FXD AL ELECT	4700UF +30%-10%
C 987	1	ECET35R472SW	C:FXD AL ELECT	4700UF +30%-10%
C 988	1	ECEA1CS102	C:FXD AL ELECT	1000UF +-20% 16
C 990	1	ECEA2CS101	C:FXD AL ELECT	100UF +30%-10%
C 996	1	ECKW2H103PE8	C:FXD CER HI-K	10000PF +100-0%

PWR SPLY DWG NO 4G204675

REF NO	QTY	PART NO	DESCRIPTION	
CR 901	1	3G460037	P5250A DIODE PWR	HV BLOCK
CR 910	1	ED15TV1	DIODE:PWR RECT	30MA 15KV
CR 913	1	1SS83TP	DIODE:SWITCHING	200MA 250V
CR 914	1	1SS83TP	DIODE:SWITCHING	200MA 250V
CR 931	1	MA150TA	DIODE:SI	100MA 35V
CR 950	1	1SS83TP	DIODE:SWITCHING	200MA 250V
CR 951	1	1SS83TP	DIODE:SWITCHING	200MA 250V
CR 952	1	1SS83TP	DIODE:SWITCHING	200MA 250V
CR 972	1	S1QB40	DIODE:PWR RECT	0.8A 400V
CR 973	1	S1RBA60F	DIODE:PWR RECT	1A 600V
CR 979	1	S1RBA40F	DIODE:PWR RECT	1A 400V
CR 980	1	MA150TA	DIODE:SI	100MA 35V
CR 981	1	MA150TA	DIODE:SI	100MA 35V
CR 982	1	MA150TA	DIODE:SI	100MA 35V
CR 983	1	MA150TA	DIODE:SI	100MA 35V
CR 984	1	MA150TA	DIODE:SI	100MA 35V
E 900	1	2G401318	P5730A PC BOARD	POWER
F 918	1	TSC1A	FUSE	1A 250V 20MM
F 990	1	SC200MA	FUSE	200MA 250V 20MM
J 901	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
J 935	1	350213-1	CONNECTOR	PIN HEADER 12P
J 936	1	M3310P01	CONNECTOR:PIN	10P STRAIGHT
J 937	1	M3305P01	CONNECTOR:PIN	5P STRAIGHT
J 980	1	EMCS1050	CONNECTOR	10P L=500MM
J 981	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
J 982	1	EMCS1050	CONNECTOR	10P L=500MM
J 983	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
J 985	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
L 903	1	4G430844-1	P5410A COIL:CHOKE	HV
Q 900	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
Q 901	1	2SA777-RS	TSTR:SI PNP	PC:750MW FT:120MHZ
Q 903	1	2SD389-PQ	TSTR:SI NPN	PC:25W FT:25MHZ
Q 930	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
Q 931	1	2SA838	TSTR:SI PNP	PC:250MW FT:300MHZ
Q 932	1	2SA914-RS	TSTR:SI PNP	PC:1W FT:200MHZ
Q 933	1	2SC2258	TSTR:SI NPN	PC:1W FT:100MHZ
Q 970	1	2SD389-PQ	TSTR:SI NPN	PC:25W FT:25MHZ
Q 971	1	2SC1683	TSTR:SI NPN	PC:20W
Q 972	1	2SC2258	TSTR:SI NPN	PC:1W FT:100MHZ
Q 973	1	2SC1359-AB	TSTR:SI NPN	PC:250MW FT:300MHZ
Q 974	1	2SC2258	TSTR:SI NPN	PC:1W FT:100MHZ

PWR SPLY DWG NO 4G204675

REF NO	QTY	PART NO	DESCRIPTION	
R 354	1	ERD25TJ911V	R:FXD CARBON	910 OHM 5% 1/4W
R 356	1	ERD25TJ911V	R:FXD CARBON	910 OHM 5% 1/4W
R 900	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 901	1	ERD25TJ334V	R:FXD CARBON	330K OHM 5% 1/4W
R 902	1	SR29R104B	R:VAR COMP	100K OHM 25% 1/8
R 903	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 904	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 905	1	ERD25TJ242V	R:FXD CARBON	2.4K OHM 5% 1/4W
R 906	1	ERD50TJ102	R:FXD CARBON	1K OHM 5% 1/2W
R 909	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 910	1	HMG1G246	R:FXD MET GRZ	24M OHM 5% 1W
R 911	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 912	1	HMG12HJ305	R:FXD MET GRZ	3M OHM 5% 1/2W
R 916	1	ERC14GK226	R:FXD COMP	22M OHM 10% 1/4W
R 917	1	HMG12HJ395	R:FXD MET GRZ	3.9M OHM 5% 1/2W
R 918	1	HMG12HJ395	R:FXD MET GRZ	3.9M OHM 5% 1/2W
R 919	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 922	1	ERD25TJ623V	R:FXD CARBON	62K OHM 5% 1/4W
R 923	1	ERD25TJ393V	R:FXD CARBON	39K OHM 5% 1/4W
R 924	1	SR29R104B	R:VAR COMP	100K OHM 25% 1/8
R 925	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 926	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 929	1	ERD25TJ224V	R:FXD CARBON	220K OHM 5% 1/4W
R 930	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R 931	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 932	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R 933	1	ERD25TJ473V	R:FXD CARBON	47K OHM 5% 1/4W
R 934	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R 937	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 938	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 939	1	ERD25TJ753V	R:FXD CARBON	75K OHM 5% 1/4W
R 940	1	ERD25TJ151V	R:FXD CARBON	150 OHM 5% 1/4W
R 941	1	ERD25TJ182V	R:FXD CARBON	1.8K OHM 5% 1/4W
R 942	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 943	1	ERD25TJ100V	R:FXD CARBON	10 OHM 5% 1/4W
R 944	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R 945	1	ERD25TJ152V	R:FXD CARBON	1.5K OHM 5% 1/4W
R 946	1	ERD25TJ183V	R:FXD CARBON	18K OHM 5% 1/4W
R 947	1	ERO25CKF2212	R:FXD MET FLM	22.1K OHM 1% 1/4
R 948	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 950	1	SR29R104B	R:VAR COMP	100K OHM 25% 1/8
R 957	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 958	1	SR29R103B	R:VAR COMP	10K OHM 25% 1/8
R 959	1	ERO25CKF2492	R:FXD MET FLM	24.9K OHM 1% 1/4
R 971	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4W

PWR SPLY DWG NO 4G204675

REF	NO	QTY	PART NO	DESCRIPTION	
R	972	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4W
R	973	1	ERD25TJ152V	R:FXD CARBON	1.5K OHM 5% 1/4W
R	974	1	ERD25TJ563V	R:FXD CARBON	56K OHM 5% 1/4W
R	975	1	ERD25TJ272V	R:FXD CARBON	2.7K OHM 5% 1/4W
R	976	1	ERD25TJ563V	R:FXD CARBON	56K OHM 5% 1/4W
R	977	1	ERX1ANJ4R7	R:FXD MET OXD	4.7 OHM 5% 1W
R	979	1	ERO25CKF3482	R:FXD MET FLM	34.8K OHM 1% 1/4W
R	980	1	ERO25CKF3921	R:FXD MET FLM	3.92K OHM 1% 1/4W
R	981	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R	984	1	ERD25TJ513V	R:FXD CARBON	51K OHM 5% 1/4W
R	985	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	987	1	ERD25TJ473V	R:FXD CARBON	47K OHM 5% 1/4W
R	988	1	ERD25TJ473V	R:FXD CARBON	47K OHM 5% 1/4W
R	989	1	ERD25TJ473V	R:FXD CARBON	47K OHM 5% 1/4W
R	990	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
T	901	1	3G430415-2	P5230A TRANSFORMER	HV
U	971	1	UPC14305H	IC:V RGLTR	+5V 1A
U	972	1	UPC14312H	IC:V RGLTR	+12V 1A
U	973	1	UPC16312H-LN	IC:V RGLTR LOW NOISE	-12V 1A
V	914	1	77V03	LAMP;NEON	
V	915	1	77V03	LAMP;NEON	
VR	951	1	RD56EB	DIODE:ZENER	5.6V 1W
XF	901	1	75A007	FUSE CLIP	
XF	902	1	75A007	FUSE CLIP	
XF	991	1	75A007	FUSE CLIP	
XF	992	1	75A007	FUSE CLIP	
XV	914	1	4G614902-0XB	HOLDER:NEON	
XV	915	1	4G614902-0XB	HOLDER:NEON	

V MODE DWG NO 4G204677

REF NO	QTY	PART NO	DESCRIPTION	
E 401	1	3G401296	P5730A PC BOARD	V MODE
J 401	1	EMCS1060L	CONNECTOR:PIN	10P ANGLE
S 401	1	4G410610	P5250A PUSHB SW	V MOD

ACQ CIRCUIT DWG NO 4G204678

REF NO	QTY	PART NO	DESCRIPTION	
C 1	1	ECCF1H101K	C:FXD CER TC	100PF +-10% 50V SL
C 2	1	ECCF1H101K	C:FXD CER TC	100PF +-10% 50V SL
C 3	1	ECCF1H101K	C:FXD CER TC	100PF +-10% 50V SL
C 4	1	ECCF1H101K	C:FXD CER TC	100PF +-10% 50V SL
C 5	1	ECCF1H101K	C:FXD CER TC	100PF +-10% 50V SL
C 6	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
7	1	ECCF1H390KC	C:FXD CER TC	39PF +-10% 50V NPO
C 8	1	ECEA1CS220B	C:FXD AL ELECT	22UF +-20% 16V
C 9	1	ECEA1CS220B	C:FXD AL ELECT	22UF +-20% 16V
C 10	1	ECCF1H220KC	C:FXD CER TC	22PF +-10% 50V NPO
C 11	1	ECV1ZW20X53T	C:VAR CER	20PF
C 12	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 13	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 14	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C 15	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C 16	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C 17	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C 18	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C 19	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C 20	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C 21	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C 22	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C 24	1	ECCF1H331K	C:FXD CER TC	330PF +-10% 50V SL
C 50	1	ECCF1H221K	C:FXD CER TC	220PF +-10% 50V SL
CR 1	1	MA161TAP	DIODE:SI	100MA 50V
CR 2	1	MA161TAP	DIODE:SI	100MA 50V
CR 3	1	MA161TAP	DIODE:SI	100MA 50V
CR 4	1	MA161TAP	DIODE:SI	100MA 50V
E 1	1	1G401237-1	P5730A PC BOARD	ACQ
J 1	1	M3310P01	CONNECTOR:PIN	10P STRAIGHT
J 2	1	M3310P01	CONNECTOR:PIN	10P STRAIGHT
J 3	1	M3310P01	CONNECTOR:PIN	10P STRAIGHT
J 4	1	M3310P01	CONNECTOR:PIN	10P STRAIGHT
J 5	1	M3305P01	CONNECTOR:PIN	5P STRAIGHT
J 6	1	65507-105	CONNECTOR:PIN	5P SINGLE
J 9	1	3G470112	P5730A CONNECTOR	ACQ-ANA
J 14	1	4G470794	P5730A CONNECTOR	ACQ-CPU
L 1	1	ELEHR68MA	COIL:CHOKE	0.68UH 20%
Q 1	1	2SC1215	TSTR:SI NPN	PC:200MW FT:1200MHZ
Q 2	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ

ACQ CIRCUIT DWG NO 4G204678

REF NO	QTY	PART NO	DESCRIPTION	
R 1	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4W
R 2	1	ERD25TJ334V	R:FXD CARBON	330K OHM 5% 1/4W
R 3	1	ERD25TJ393V	R:FXD CARBON	39K OHM 5% 1/4W
R 4	1	ERD25TJ684V	R:FXD CARBON	680K OHM 5% 1/4W
R 5	1	ERD25TJ684V	R:FXD CARBON	680K OHM 5% 1/4W
R 6	1	ERD25TJ393V	R:FXD CARBON	39K OHM 5% 1/4W
R 7	1	ERD25TJ334V	R:FXD CARBON	330K OHM 5% 1/4W
R 8	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4W
R 9	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 10	1	ERD25TJ330V	R:FXD CARBON	33 OHM 5% 1/4W
R 11	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 12	1	EXBP88104K	R:NETWORK	100K OHM X8 10%
R 13	1	ERD25TJ681V	R:FXD CARBON	680 OHM 5% 1/4W
R 14	1	ERD25TJ153V	R:FXD CARBON	15K OHM 5% 1/4W
R 15	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R 16	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 17	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R 18	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 19	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 20	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 21	1	EXBP88104K	R:NETWORK	100K OHM X8 10%
R 22	1	EXBP88103J	R:NETWORK	10K OHM X8 5% 1/
R 23	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 24	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 25	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 26	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 27	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 30	1	EXBRB8103J	R:NETWORK	10K OHM X7 10%
R 31	1	EXBP88104K	R:NETWORK	100K OHM X8 10%
R 32	1	EXBRB8103J	R:NETWORK	10K OHM X7 10%
R 33	1	EXBP88104K	R:NETWORK	100K OHM X8 10%
R 34	1	EXBRB8103J	R:NETWORK	10K OHM X7 10%
R 35	1	EXBP88104K	R:NETWORK	100K OHM X8 10%
R 36	1	ERD25TJ333V	R:FXD CARBON	33K OHM 5% 1/4W
R 37	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4W
R 38	1	EXBRB8103J	R:NETWORK	10K OHM X7 10%
R 39	1	EXBP88104K	R:NETWORK	100K OHM X8 10%
R 41	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 42	1	ERD25TJ821V	R:FXD CARBON	820 OHM 5% 1/4W
R 43	1	ERD25TJ152V	R:FXD CARBON	1.5K OHM 5% 1/4W
R 44	1	ERD25TJ333V	R:FXD CARBON	33K OHM 5% 1/4W
R 45	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R 46	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4W
R 47	1	ERD25TJ153V	R:FXD CARBON	15K OHM 5% 1/4W
R 50	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W

ACQ CIRCUIT DWG NO 4G204678

REF NO	QTY	PART NO	DESCRIPTION	
R 51	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 52	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 53	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 54	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
U 1	1	TC40H004P	IC:C MOS	QUAD 2-INPUT NAND GATE
U 2	1	TC40H002P	IC:C MOS	QUAD 2-INPUT NOR GATE
U 3	1	TC40H000P	IC:C MOS	QUAD 2-INPUT NAND GATE
U 4	1	TC40H002P	IC:C MOS	QUAD 2-INPUT NOR GATE
U 5	1	TC40H107P	IC:C MOS	DUAL J-K FLIP-FLOP
U 6	1	TC40H245P	IC:C MOS	OCTAL BUS TRANSCEIVER 3S
U 7	1	TC40H004P	IC:C MOS	QUAD 2-INPUT NAND GATE
U 8	1	TC40H000P	IC:C MOS	QUAD 2-INPUT NAND GATE
U 9	1	TC40H107P	IC:C MOS	DUAL J-K FLIP-FLOP
U 10	1	SN74S112N	IC:TTL S	DUAL J-K FLIP-FLOP
U 11	1	SN74S00N	IC:TTL S	QUAD 2-INPUT NAND GATE
U 12	1	TC40H245P	IC:C MOS	OCTAL BUS TRANSCEIVER 3S
U 13	1	TC40H245P	IC:C MOS	OCTAL BUS TRANSCEIVER 3S
U 14	1	SN74LS374N	IC:TTL LS	OCTAL D-TYPE FLIP-FLOP
U 15	1	SN74S00N	IC:TTL S	QUAD 2-INPUT NAND GATE
U 16	1	SN74S112N	IC:TTL S	DUAL J-K FLIP-FLOP
U 17	1	SN74LS163AN	IC:TTL LS	SYNC BINARY COUNTER
U 18	1	TC40H245P	IC:C MOS	OCTAL BUS TRANSCEIVER 3S
U 19	1	SN74LS30N	IC:TTL LS	8-INPUT NAND GATE
U 20	1	SN74LS374N	IC:TTL LS	OCTAL D-TYPE FLIP-FLOP
U 21	1	SN74LS85N	IC:TTL LS	4-BIT COMPARATOR
U 22	1	SN74LS85N	IC:TTL LS	4-BIT COMPARATOR
U 23	1	SN74LS374N	IC:TTL LS	OCTAL D-TYPE FLIP-FLOP
U 24	1	SN74LS163AN	IC:TTL LS	SYNC BINARY COUNTER
U 25	1	SN74LS30N	IC:TTL LS	8-INPUT NAND GATE
U 26	1	SN74LS374N	IC:TTL LS	OCTAL D-TYPE FLIP-FLOP
U 27	1	SN74LS85N	IC:TTL LS	4-BIT COMPARATOR
U 28	1	SN74LS85N	IC:TTL LS	4-BIT COMPARATOR
U 29	1	SN74LS374N	IC:TTL LS	OCTAL D-TYPE FLIP-FLOP
U 30	1	TC40H138P	IC:C MOS	3-TO-8 LINE DECODER
U 31	1	TC40H138P	IC:C MOS	3-TO-8 LINE DECODER
U 32	1	SN74LS08N	IC:TTL LS	QUAD 2-INPUT AND GATE
U 33	1	TC40H004P	IC:C MOS	QUAD 2-INPUT NAND GATE
U 34	1	TC40H245P	IC:C MOS	OCTAL BUS TRANSCEIVER 3S
U 35	1	SN74LS74AN	IC:TTL LS	DUAL D-TYPE FLIP-FLOP
U 35	1	SN74S74N	IC:TTL S	DUAL D-TYPE FLIP-FLOP
U 36	1	SN74LS10N	IC:TTL LS	TRIPLE 3-INPUT NAND GATE
U 37	1	SN74LS74AN	IC:TTL LS	DUAL D-TYPE FLIP-FLOP
U 38	1	SN74LS164N	IC:TTL LS	8-BIT SHIFT REGISTER
U 39	1	SN74LS107N	IC:TTL LS	DUAL J-K FLIP-FLOP

ACQ CIRCUIT DWG NO 4G204678

REF NO	QTY	PART NO	DESCRIPTION	
U 40	1	SN74LS151N	IC:TTL LS	8-BIT DATA SELEC
U 41	1	TC40H027P	IC:C MOS	TRIPLE 3-INPUT N
U 42	1	TC40H245P	IC:C MOS	OCTAL BUS TRANSC
U 43	1	SN74LS164N	IC:TTL LS	8-BIT SHIFT REGI
U 44	1	SN74LS107N	IC:TTL LS	DUAL J-K FLIP-FL
U 45	1	SN74LS74AN	IC:TTL LS	DUAL D-TYPE FLIP
U 46	1	SN74LS153N	IC:TTL LS	DUAL 4-TO-1 LINE
U 47	1	SN74LS174N	IC:TTL LS	HEX D-TYPE FLIP-
U 48	1	SN74LS390N	IC:TTL LS	DUAL DECADE COUN
U 49	1	TC40H027P	IC:C MOS	TRIPLE 3-INPUT N
U 50	1	TC40H245P	IC:C MOS	OCTAL BUS TRANSC
U 51	1	SN74LS374N	IC:TTL LS	OCTAL D-TYPE FLI
U 52	1	SN74LS163AN	IC:TTL LS	SYNC BINARY COUN
U 53	1	SN74LS163AN	IC:TTL LS	SYNC BINARY COUN
U 54	1	SN74LS107N	IC:TTL LS	DUAL J-K FLIP-FL
U 55	1	SN74LS90N	IC:TTL LS	DECADE COUNTER
U 56	1	SN74LS390N	IC:TTL LS	DUAL DECADE COUN
U 57	1	TC40H004P	IC:C MOS	QUAD 2-INPUT NAN
U 58	1	TC40H002P	IC:C MOS	QUAD 2-INPUT NOR
U 59	1	SN74S04N	IC:TTL S	HEX INVERTER
U 60	1	SN74LS00N	IC:TTL LS	QUAD 2-INPUT NAN
U 61	1	SN74LS107N	IC:TTL LS	DUAL J-K FLIP-FL
U 62	1	SN74LS153N	IC:TTL LS	DUAL 4-TO-1 LINE
U 63	1	SN74LS390N	IC:TTL LS	DUAL DECADE COUN
XU 7	1	DILB14P-8J	IC SOCKET	14-PIN DIL
XU 8	1	DILB14P-8J	IC SOCKET	14-PIN DIL
Y 1	1	4G461803	CRYSTAL:QUARTZ OSC	50.00MHZ (HC-18/

CPU CIRCUIT DWG NO 4G204679

REF	NO	QTY	PART NO	DESCRIPTION	
C	1	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C	2	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C	5	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C	6	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C	7	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C	8	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C	9	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C	10	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C	11	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C	12	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C	13	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C	14	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C	15	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C	16	1	ECSZ35HS1	C:FXD TA ELECT	1UF 20% 35V
C	18	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C	21	1	ECCF1H220KC	C:FXD CER TC	22PF +-10% 50V NPO
C	22	1	ECCF1H151KC	C:FXD CER TC	150PF +-10% 50V NPO
E	1	1	1G401238-1	P5730A PC BOARD	CPU
J	10	1	3G470112	P5730A CONNECTOR	ACQ-ANA
J	12	1	M3115S13	CONNECTOR:PIN	15P L:300
J	13	1	M3115S13	CONNECTOR:PIN	15P L:300
Q	10	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
R	1	1	EXBP88103J	R:NETWORK	10K OHM X8 5% 1/8W
R	2	1	EXBP88103J	R:NETWORK	10K OHM X8 5% 1/8W
R	3	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	4	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	5	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	6	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	16	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	20	1	ERD25TJ331V	R:FXD CARBON	330 OHM 5% 1/4W
U		1	4G480042-2	P5730A SOFT U2	MAIN PROGRAM 58.12.5
U		1	4G480043-2	P5730A SOFT U5	MAIN PROGRAM 58.12.5
U	1	1	P8085A	IC:N MOS	8-BIT MICROPROCESSOR
U	2	1	UPD2764D	IC:N MOS	
U	3	1	UPD4016C2	IC:N MOS	2K X8 STATIC RAM 250NS
U	4	1	SN74LS374N	IC:TTL LS	OCTAL D-TYPE FLIP-FLOP
U	5	1	UPD2764D	IC:N MOS	
U	6	1	SN74LS374N	IC:TTL LS	OCTAL D-TYPE FLIP-FLOP
U	7	1	SN74LS163AN	IC:TTL LS	SYNC BINARY COUNTER
U	8	1	SN74LS138N	IC:TTL LS	3-TO-8 LINE DECODER

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REF NO	QTY	PART NO	DESCRIPTION
U 9	1	SN74LS163AN	IC:TTL LS SYNC BINARY COUN
U 10	1	SN74LS163AN	IC:TTL LS SYNC BINARY COUN
U 11	1	SN74LS373N	IC:TTL LS OCTAL TRANSPAREN
U 12	1	SN74LS373N	IC:TTL LS OCTAL TRANSPAREN
U 13	1	SN74LS163AN	IC:TTL LS SYNC BINARY COUN
U 14	1	SN74LS163AN	IC:TTL LS SYNC BINARY COUN
U 15	1	SN74LS163AN	IC:TTL LS SYNC BINARY COUN
U 16	1	TC40H138P	IC:C MOS 3-TO-8 LINE DECC
U 17	1	TC40H138P	IC:C MOS 3-TO-8 LINE DECC
U 18	1	SN74LS374N	IC:TTL LS OCTAL D-TYPE FLI
U 19	1	SN74LS374N	IC:TTL LS OCTAL D-TYPE FLI
U 20	1	SN74LS374N	IC:TTL LS OCTAL D-TYPE FLI
U 21	1	SN74LS245N	IC:TTL LS OCTAL BUS TRANCE
U 22	1	SN74LS30N	IC:TTL LS 8-INPUT NAND GAI
U 23	1	SN74LS245N	IC:TTL LS OCTAL BUS TRANCE
U 24	1	TC40H138P	IC:C MOS 3-TO-8 LINE DECC
U 25	1	SN74LS393N	IC:TTL LS DUAL BINARY COUN
U 26	1	SN74LS374N	IC:TTL LS OCTAL D-TYPE FLI
U 27	1	SN74LS374N	IC:TTL LS OCTAL D-TYPE FLI
U 28	1	SN74LS257N	IC:TTL LS QUAD 2-TO-1 LINE
U 29	1	UPD4016C2	IC:N MOS 2K X8 STATIC RAM
U 30	1	UPD4016C2	IC:N MOS 2K X8 STATIC RAM
U 31	1	SN74LS175N	IC:TTL LS QUAD D-TYPE FLII
U 32	1	SN74LS153N	IC:TTL LS DUAL 4-TO-1 LINE
U 33	1	SN74LS374N	IC:TTL LS OCTAL D-TYPE FL
U 34	1	SN74LS257N	IC:TTL LS QUAD 2-TO-1 LINE
U 35	1	SN74LS51N	IC:TTL LS DUAL 2-WIDE 2-IN
U 36	1	SN74LS253N	IC:TTL LS DUAL DATA SELEC
U 37	1	SN74LS86N	IC:TTL LS OUAD EXCLUSIVE
U 38	1	SN74LS00N	IC:TTL LS QUAD 2-INPUT NA
U 39	1	SN74LS00N	IC:TTL LS QUAD 2-INPUT NA
U 40	1	SN74LS51N	IC:TTL LS DUAL 2-WIDE 2-IN
U 41	1	SN74LS08N	IC:TTL LS QUAD 2-INPUT AN
U 42	1	SN74LS51N	IC:TTL LS DUAL 2-WIDE 2-IN
U 43	1	SN74LS175N	IC:TTL LS QUAD D-TYPE FLII
U 44	1	SN74LS93N	IC:TTL LS 4-BIT BINARY COU
U 45	1	SN74LS10N	IC:TTL LS TRIPLE 3-INPUT
U 46	1	SN74LS74AN	IC:TTL LS DUAL D-TYPE FLI
U 47	1	SN74LS02N	IC:TTL LS QUAD 2-INPUT NO
U 48	1	SN74LS74AN	IC:TTL LS DUAL D-TYPE FLI
U 49	1	SN74LS00N	IC:TTL LS QUAD 2-INPUT NA
U 50	1	SN74LS107N	IC:TTL LS DUAL J-K FLIP-F
U 51	1	SN74LS393N	IC:TTL LS DUAL BINARY COU
U 52	1	SN74LS02N	IC:TTL LS QUAD 2-INPUT NO
U 53	1	SN74LS00N	IC:TTL LS QUAD 2-INPUT NA

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REF NO	QTY	PART NO	DESCRIPTION	
U 54	1	SN74LS107N	IC:TTL LS	DUAL J-K FLIP-FLOP
U 55	1	SN74LS107N	IC:TTL LS	DUAL J-K FLIP-FLOP
U 56	1	SN74LS02N	IC:TTL LS	QUAD 2-INPUT NOR GATE
U 57	1	SN74LS00N	IC:TTL LS	QUAD 2-INPUT NAND GATE
U 58	1	SN74LS74AN	IC:TTL LS	DUAL D-TYPE FLIP-FLOP
U 59	1	SN74LS374N	IC:TTL LS	OCTAL D-TYPE FLIP-FLOP
U 61	1	SN74LS00N	IC:TTL LS	QUAD 2-INPUT NAND GATE
XU 2	1	DILB28P-8J	IC SOCKET	28-PIN DIL
XU 5	1	DILB28P-8J	IC SOCKET	28-PIN DIL
XU 11	1	DILB16P-8J	IC SOCKET	16-PIN DIL

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REF NO	QTY	PART NO	DESCRIPTION	
C 1	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 2	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 4	1	ECCF1H120KC	C:FXD CER TC	12PF +-10% 50V N
C 5	1	ECCF1H120KC	C:FXD CER TC	12PF +-10% 50V N
C 19	1	ECCF1H060DC	C:FXD CER TC	6PF +-0.5PF 50V
C 20	1	ECKF1H561KB	C:FXD CER HI-K	560PF +-10% 50V
C 22	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 28	1	ECCF1H010CC	C:FXD CER TC	1PF +-0.25PF 50V
C 30	1	ECCF1H010CC	C:FXD CER TC	1PF +-0.25PF 50V
C 34	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 35	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 36	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 41	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 42	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 47	1	ECCF1H020CC	C:FXD CER TC	2PF +-0.25PF 50V
C 54	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 55	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 56	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 57	1	ECCF1H560KC	C:FXD CER TC	56PF +-10% 50V N
C 58	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 59	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 60	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 70	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 71	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 72	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 73	1	ECCF1H560KC	C:FXD CER TC	56PF +-10% 50V N
C 74	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 75	1	ECKD1E104ZFZ	C:FXD CER HI-K	100000PF +80-20%
C 76	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 77	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 83	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 84	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 111	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 119	1	ECCF1H060DC	C:FXD CER TC	6PF +-0.5PF 50V
C 120	1	ECKF1H561KB	C:FXD CER HI-K	560PF +-10% 50V
C 122	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 128	1	ECCF1H010CC	C:FXD CER TC	1PF +-0.25PF 50V
C 130	1	ECCF1H010CC	C:FXD CER TC	1PF +-0.25PF 50V
C 135	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 136	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 142	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 143	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 155	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 156	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 157	1	ECCF1H560KC	C:FXD CER TC	56PF +-10% 50V N

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REF NO	QTY	PART NO	DESCRIPTION	
C 159	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 164	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 170	1	ECKD1E104ZFZ	C:FXD CER HI-K	100000PF +80-20% 25V
C 171	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 172	1	ECCF1H560KC	C:FXD CER TC	56PF +-10% 50V NPO
C 173	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 174	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 177	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 180	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 181	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 190	1	ECCF1H330KC	C:FXD CER TC	33PF +-10% 50V NPO
C 201	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 202	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 203	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 204	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 205	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 206	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 207	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 208	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 209	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 210	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 211	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 212	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 213	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 301	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 302	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 304	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 305	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 306	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 307	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 309	1	ECKD1E104ZFZ	C:FXD CER HI-K	100000PF +80-20% 25V
C 310	1	ECCD1H330JC2	C:FXD CER TC	33PF +-5% 50V NPO
C 320	1	ECKD1E104ZFZ	C:FXD CER HI-K	100000PF +80-20% 25V
C 321	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 322	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 323	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 324	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 325	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 327	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 335	1	ECEA1CS101	C:FXD AL ELECT	100UF +-20% 16V
C 341	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 343	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 344	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 345	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 347	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V

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REF NO	QTY	PART NO	DESCRIPTION	
C 348	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 350	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 351	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 352	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 353	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 354	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 355	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 357	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 358	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 361	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 362	1	ECCF1H221KC	C:FXD CER TC	220PF +-10% 50V
C 363	1	ECKD1H102MD	C:FXD CER HI-K	1000PF +-20% 50V
C 364	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 365	1	ECEA1AS101	C:FXD AL ELECT	100UF +-20% 10V
C 368	1	ECCF1H221KC	C:FXD CER TC	220PF +-10% 50V
C 379	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 380	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 401	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 404	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 406	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 407	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 408	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 409	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 410	1	ECRCA100H12	C:VAR DISK	10PF
C 411	1	ECRCA100H12	C:VAR DISK	10PF
C 412	1	ECRCA100H12	C:VAR DISK	10PF
C 413	1	ECRCA100H12	C:VAR DISK	10PF
C 414	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 415	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 416	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 421	1	ECKD1H102MD	C:FXD CER HI-K	1000PF +-20% 50V
C 423	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 424	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 425	1	ECCF1H150KC	C:FXD CER TC	15PF +-10% 50V N
C 426	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 427	1	ECKD1H681MB2	C:FXD CER HI-K	680PF +-20% 50V
C 428	1	ECQP1102FZ	C:FXD FLM	1000PF 1% 100V
C 429	1	ECCF1H101KC	C:FXD CER TC	100PF +-10% 50V
C 430	1	ECCF1H470KC	C:FXD CER TC	47PF +-10% 50V N
C 431	1	ECCF1H271KC	C:FXD CER TC	270PF +-10% 50V
C 432	1	ECQP1222GZ	C:FXD FLM	2200PF 2% 100V
C 433	1	ECCF1H101KC	C:FXD CER TC	100PF +-10% 50V
C 434	1	ECQP1102FZ	C:FXD FLM	1000PF 1% 100V
C 435	1	ECQP1222GZ	C:FXD FLM	2200PF 2% 100V
C 436	1	ECCF1H221KC	C:FXD CER TC	220PF +-10% 50V

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REF NO	QTY	PART NO	DESCRIPTION	
C 437	1	ECCF1H101KC	C:FXD CER TC	100PF +-10% 50V NPO
C 442	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 443	1	ECQP1102FZ	C:FXD FLM	1000PF 1% 100V
C 444	1	ECQP1182FZ	C:FXD FLM	1800PF 1% 100V
C 446	1	ECCF1H181KC	C:FXD CER TC	180PF +-10% 50V NPO
C 447	1	ECEA1HS4R7	C:FXD AL ELECT	4.7UF +-20% 50V
C 448	1	ECEA1HS4R7	C:FXD AL ELECT	4.7UF +-20% 50V
C 453	1	ECCF1H101KC	C:FXD CER TC	100PF +-10% 50V NPO
C 467	1	ECQP1102FZ	C:FXD FLM	1000PF 1% 100V
C 470	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 471	1	ECCF1H271KC	C:FXD CER TC	270PF +-10% 50V NPO
C 472	1	ECCF1H271KC	C:FXD CER TC	270PF +-10% 50V NPO
C 473	1	ECCF1H470KC	C:FXD CER TC	47PF +-10% 50V NPO
C 480	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 485	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 499	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
CR 5	1	MA161TAP	DIODE:SI	100MA 50V
CR 6	1	MA161TAP	DIODE:SI	100MA 50V
CR 7	1	MA161TAP	DIODE:SI	100MA 50V
CR 38	1	1SS97	DIODE:SI	35MA 10V
CR 46	1	MA161TAP	DIODE:SI	100MA 50V
CR 47	1	1SS97	DIODE:SI	35MA 10V
CR 55	1	1SS97	DIODE:SI	35MA 10V
CR 56	1	1SS97	DIODE:SI	35MA 10V
CR 57	1	1SS97	DIODE:SI	35MA 10V
CR 58	1	1SS97	DIODE:SI	35MA 10V
CR 71	1	1SS97	DIODE:SI	35MA 10V
CR 72	1	1SS97	DIODE:SI	35MA 10V
CR 73	1	1SS97	DIODE:SI	35MA 10V
CR 74	1	1SS97	DIODE:SI	35MA 10V
CR 105	1	MA161TAP	DIODE:SI	100MA 50V
CR 106	1	MA161TAP	DIODE:SI	100MA 50V
CR 107	1	MA161TAP	DIODE:SI	100MA 50V
CR 138	1	1SS97	DIODE:SI	35MA 10V
CR 146	1	MA161TAP	DIODE:SI	100MA 50V
CR 147	1	1SS97	DIODE:SI	35MA 10V
CR 155	1	1SS97	DIODE:SI	35MA 10V
CR 156	1	1SS97	DIODE:SI	35MA 10V
CR 157	1	1SS97	DIODE:SI	35MA 10V
CR 158	1	1SS97	DIODE:SI	35MA 10V
CR 167	1	MA161TAP	DIODE:SI	100MA 50V

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REF NO	QTY	PART NO	DESCRIPTION	
CR 171	1	1SS97	DIODE:SI	35MA 10V
CR 172	1	1SS97	DIODE:SI	35MA 10V
CR 173	1	1SS97	DIODE:SI	35MA 10V
CR 174	1	1SS97	DIODE:SI	35MA 10V
CR 200	1	MA161TAP	DIODE:SI	100MA 50V
CR 201	1	MA161TAP	DIODE:SI	100MA 50V
CR 230	1	MA161TAP	DIODE:SI	100MA 50V
CR 247	1	MA161TAP	DIODE:SI	100MA 50V
CR 301	1	MA161TAP	DIODE:SI	100MA 50V
CR 321	1	MA161TAP	DIODE:SI	100MA 50V
CR 351	1	MA161TAP	DIODE:SI	100MA 50V
CR 353	1	MA161TAP	DIODE:SI	100MA 50V
CR 354	1	MA161TAP	DIODE:SI	100MA 50V
CR 355	1	MA161TAP	DIODE:SI	100MA 50V
CR 376	1	MA161TAP	DIODE:SI	100MA 50V
CR 377	1	MA161TAP	DIODE:SI	100MA 50V
CR 412	1	MA161TAP	DIODE:SI	100MA 50V
CR 413	1	MA161TAP	DIODE:SI	100MA 50V
E	1	1G401239-1	P5730A PC BOARD	ANA
J 31	1	3431-1002SC	CONNECTOR	PIN HEADER 34P
J 32	1	3431-1002SC	CONNECTOR	PIN HEADER 34P
J 33	1	M3305P01	CONNECTOR:PIN	5P STRAIGHT
J 34	1	163683-3	CONNECTOR:PIN	CIS 5P 2.5PITCH
J 35	1	163683-3	CONNECTOR:PIN	CIS 5P 2.5PITCH
J 36	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
J 37	1	M3310P01	CONNECTOR:PIN	10P STRAIGHT
J 38	1	65507-110	CONNECTOR:PIN	10P
J 50	1	4G470781	Q071B JUMPER LEAD	8PX100MM
K 20	1	AG6019	REED RELAY	5V 230MA 5VDC 1
K 38	1	AG6019	REED RELAY	5V 230MA 5VDC 1
K 40	1	AG6019	REED RELAY	5V 230MA 5VDC 1
K 137	1	AG6019	REED RELAY	5V 230MA 5VDC 1
K 138	1	AG6019	REED RELAY	5V 230MA 5VDC 1
L 54	1	OP331HL82	FERRITE CORE	
L 75	1	OP331HL82	FERRITE CORE	
L 159	1	OP331HL82	FERRITE CORE	
L 170	1	OP331HL82	FERRITE CORE	
L 335	1	3L0004	FERRITE CORE	
L 351	1	3L0004	FERRITE CORE	
L 401	1	3L0004	FERRITE CORE	
L 476	1	ELEH5R6KA	COIL:CHOKE	5.6UH 10%

ANALOG CIRCUIT DWG NO 4G204680

REF	NO	QTY	PART NO	DESCRIPTION	
Q	1	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	2	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	3	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	4	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	5	1	2N3906	TSTR:SI PNP	PC:300MW FT:250MHZ
Q	6	1	2N3906	TSTR:SI PNP	PC:300MW FT:250MHZ
Q	8	1	UPA74V	TSTR:FET	PC:300MW FT:350MHZ
Q	41	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	42	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	43	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	44	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	45	1	2SA1206	TSTR:SI PNP	PC:600MW FT:1000MHZ
Q	46	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220MHZ
Q	55	1	2SA1206	TSTR:SI PNP	PC:600MW FT:1000MHZ
Q	56	1	2SA1206	TSTR:SI PNP	PC:600MW FT:1000MHZ
Q	57	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	58	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	59	1	UPA61A-M	TSTR:FET	PC:250MW
Q	60	1	UPA75V	TSTR:SI PNP	DUAL
Q	61	1	UPA74V	TSTR:FET	PC:300MW FT:350MHZ
Q	71	1	2SA1206	TSTR:SI PNP	PC:600MW FT:1000MHZ
Q	72	1	2SA1206	TSTR:SI PNP	PC:600MW FT:1000MHZ
Q	73	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	74	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	75	1	UPA61A-M	TSTR:FET	PC:250MW
Q	76	1	UPA75V	TSTR:SI PNP	DUAL
Q	77	1	UPA74V	TSTR:FET	PC:300MW FT:350MHZ
Q	80	1	UPA74V	TSTR:FET	PC:300MW FT:350MHZ
Q	81	1	UPA75V	TSTR:SI PNP	DUAL
Q	101	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	102	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	103	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	104	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	105	1	2N3906	TSTR:SI PNP	PC:300MW FT:250MHZ
Q	106	1	2N3906	TSTR:SI PNP	PC:300MW FT:250MHZ
Q	108	1	UPA74V	TSTR:FET	PC:300MW FT:350MHZ
Q	142	1	2N3906	TSTR:SI PNP	PC:300MW FT:250MHZ
Q	143	1	2N3906	TSTR:SI PNP	PC:300MW FT:250MHZ
Q	144	1	2N3906	TSTR:SI PNP	PC:300MW FT:250MHZ
Q	145	1	2N3906	TSTR:SI PNP	PC:300MW FT:250MHZ
Q	146	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q	147	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	155	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	156	1	2SC2026	TSTR:SI NPN	PC:250MW FT:2000MHZ
Q	157	1	2SA1206	TSTR:SI PNP	PC:600MW FT:1000MHZ

ANALOG CIRCUIT DWG NO 4G204680

REF NO	QTY	PART NO	DESCRIPTION	
Q 158	1	2SA1206	TSTR:SI PNP	PC:600MW FT:100(
Q 159	1	UPA61A-M	TSTR:FET	PC:250MW
Q 160	1	UPA75V	TSTR:SI PNP	DUAL
Q 161	1	UPA74V	TSTR:FET	PC:300MW FT:350M
Q 171	1	2SC2026	TSTR:SI NPN	PC:250MW FT:200(
Q 172	1	2SC2026	TSTR:SI NPN	PC:250MW FT:200(
Q 173	1	2SA1206	TSTR:SI PNP	PC:600MW FT:100(
Q 174	1	2SA1206	TSTR:SI PNP	PC:600MW FT:100(
Q 175	1	UPA61A-M	TSTR:FET	PC:250MW
Q 176	1	UPA74V	TSTR:FET	PC:300MW FT:350M
Q 177	1	UPA75V	TSTR:SI PNP	DUAL
Q 180	1	UPA74V	TSTR:FET	PC:300MW FT:350M
Q 181	1	UPA75V	TSTR:SI PNP	DUAL
Q 230	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MH
Q 240	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MH
Q 331	1	2SA777-RS	TSTR:SI PNP	PC:750MW FT:120M
Q 350	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220M
Q 351	1	2SC1815TA-BL	TSTR:SI NPN	PC:400MW FT:80M
Q 353	1	2SC1815TA-BL	TSTR:SI NPN	PC:400MW FT:80M
Q 354	1	2SC1815TA-BL	TSTR:SI NPN	PC:400MW FT:80M
Q 355	1	2SC1815TA-BL	TSTR:SI NPN	PC:400MW FT:80M
Q 356	1	2SC2258	TSTR:SI NPN	PC:1W FT:100MHZ
Q 357	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220M
Q 401	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MH
Q 402	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MH
Q 403	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220M
Q 405	1	UPA75V	TSTR:SI PNP	DUAL
Q 410	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MH
Q 445	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MH
Q 446	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220M
Q 449	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MH
Q 450	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220M
Q 460	1	2N3906	TSTR:SI PNP	PC:300MW FT:250M
Q 461	1	2N3906	TSTR:SI PNP	PC:300MW FT:250M
Q 475	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220M
R 2	1	ERD25TJ361V	R:FXD CARBON	360 OHM 5% 1/4W
R 3	1	ERD25TJ272V	R:FXD CARBON	2.7K OHM 5% 1/4W
R 4	1	ERD10TJ470	R:FXD CARBON	47 OHM 5% 1/8W
R 5	1	ERD10TJ470	R:FXD CARBON	47 OHM 5% 1/8W
R 8	1	ERO25CKF2210	R:FXD MET FLM	221 OHM 1% 1/4W
R 9	1	ERO25CKF2210	R:FXD MET FLM	221 OHM 1% 1/4W
R 10	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 11	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 13	1	ERD25TJ200V	R:FXD CARBON	20 OHM 5% 1/4W
R 14	1	ERD25TJ151V	R:FXD CARBON	150 OHM 5% 1/4W

ANALOG CIRCUIT DWG NO 4G204680

REF NO	QTY	PART NO	DESCRIPTION	
R 15	1	EVMQ0GA01B51	R:VAR CERMET	50 OHM 20% 0.5W
R 16	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 17	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 20	1	ERD25TJ681V	R:FXD CARBON	680 OHM 5% 1/4W
R 21	1	ERD25TJ681V	R:FXD CARBON	680 OHM 5% 1/4W
R 22	1	ERO25CKF5360	R:FXD MET FLM	536 OHM 1% 1/4W
R 23	1	ERO25CKF5360	R:FXD MET FLM	536 OHM 1% 1/4W
R 24	1	ERD25TJ202V	R:FXD CARBON	2K OHM 5% 1/4W
R 25	1	ERD25TJ202V	R:FXD CARBON	2K OHM 5% 1/4W
R 26	1	ERD25TJ202V	R:FXD CARBON	2K OHM 5% 1/4W
R 26	1	ERO25CKF6190	R:FXD MET FLM	619 OHM 1% 1/4W
R 27	1	ERO25CKF1001	R:FXD MET FLM	1K OHM 1% 1/4W
R 28	1	ERO25CKF1211	R:FXD MET FLM	1.21K OHM 1% 1/4W
R 29	1	ERO25CKF1001	R:FXD MET FLM	1K OHM 1% 1/4W
R 30	1	ERO25CKF2000	R:FXD MET FLM	200 OHM 1% 1/4W
R 31	1	ERO25CKF1001	R:FXD MET FLM	1K OHM 1% 1/4W
R 32	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 33	1	ERD25TJ202V	R:FXD CARBON	2K OHM 5% 1/4W
R 34	1	TM64K2PV2-14	R:VAR CERMET	10K OHM 20%
R 35	1	ERD25TJ182V	R:FXD CARBON	1.8K OHM 5% 1/4W
R 36	1	ERD25TJ122V	R:FXD CARBON	1.2K OHM 5% 1/4W
R 37	1	ERD25TJ122V	R:FXD CARBON	1.2K OHM 5% 1/4W
R 39	1	ERD25TJ202V	R:FXD CARBON	2K OHM 5% 1/4W
R 40	1	ERD25TJ122V	R:FXD CARBON	1.2K OHM 5% 1/4W
R 41	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 42	1	ERD25TJ272V	R:FXD CARBON	2.7K OHM 5% 1/4W
R 43	1	ERD25TJ243V	R:FXD CARBON	24K OHM 5% 1/4W
R 44	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 45	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 46	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R 47	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R 48	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 49	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 50	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 51	1	TM64K2PV2-12	R:VAR CERMET	100 OHM 20%
R 52	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 53	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 54	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 55	1	ERD25TJ511V	R:FXD CARBON	510 OHM 5% 1/4W
R 56	1	ERD25TJ511V	R:FXD CARBON	510 OHM 5% 1/4W
R 57	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R 58	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R 59	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R 60	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R 61	1	ERD25TJ751V	R:FXD CARBON	750 OHM 5% 1/4W

ANALOG CIRCUIT DWG NO 4G204680

REF	NO	QTY	PART NO	DESCRIPTION	
R	62	1	ERD25TJ751V	R:FXD CARBON	750 OHM 5% 1/4W
R	63	1	ERO25CKF1000	R:FXD MET FLM	100 OHM 1% 1/4W
R	64	1	ERO25CKF1000	R:FXD MET FLM	100 OHM 1% 1/4W
R	65	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	66	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R	67	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	68	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	69	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	70	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	71	1	ERD25TJ511V	R:FXD CARBON	510 OHM 5% 1/4W
R	72	1	ERD25TJ511V	R:FXD CARBON	510 OHM 5% 1/4W
R	73	1	ERO25CKF4750	R:FXD MET FLM	475 OHM 1% 1/4W
R	74	1	ERO25CKF4750	R:FXD MET FLM	475 OHM 1% 1/4W
R	75	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R	76	1	ERD25TJ272V	R:FXD CARBON	2.7K OHM 5% 1/4W
R	77	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R	78	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R	79	1	ERD25TJ751V	R:FXD CARBON	750 OHM 5% 1/4W
R	80	1	ERD25TJ751V	R:FXD CARBON	750 OHM 5% 1/4W
R	81	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	82	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R	83	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R	84	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R	85	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R	86	1	ERO25CKF1000	R:FXD MET FLM	100 OHM 1% 1/4W
R	87	1	ERO25CKF1000	R:FXD MET FLM	100 OHM 1% 1/4W
R	90	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R	91	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R	102	1	ERD25TJ361V	R:FXD CARBON	360 OHM 5% 1/4W
R	103	1	ERD25TJ272V	R:FXD CARBON	2.7K OHM 5% 1/4W
R	105	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R	106	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R	108	1	ERO25CKF2210	R:FXD MET FLM	221 OHM 1% 1/4W
R	109	1	ERO25CKF2210	R:FXD MET FLM	221 OHM 1% 1/4W
R	110	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	111	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	113	1	ERD25TJ200V	R:FXD CARBON	20 OHM 5% 1/4W
R	114	1	ERD25TJ151V	R:FXD CARBON	150 OHM 5% 1/4W
R	115	1	EVMQ0GA01B51	R:VAR CERMET	50 OHM 20% 0.5W
R	116	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R	117	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R	120	1	ERD25TJ681V	R:FXD CARBON	680 OHM 5% 1/4W
R	121	1	ERD25TJ681V	R:FXD CARBON	680 OHM 5% 1/4W
R	122	1	ERO25CKF5360	R:FXD MET FLM	536 OHM 1% 1/4W
R	123	1	ERO25CKF5360	R:FXD MET FLM	536 OHM 1% 1/4W

ANALOG CIRCUIT DWG NO 4G204680

REF	NO	QTY	PART NO	DESCRIPTION	
R	124	1	ERD25TJ202V	R:FXD CARBON	2K OHM 5% 1/4W
R	125	1	ERD25TJ202V	R:FXD CARBON	2K OHM 5% 1/4W
R	126	1	ERO25CKF1001	R:FXD MET FLM	1K OHM 1% 1/4W
R	128	1	ERO25CKF1211	R:FXD MET FLM	1.21K OHM 1% 1/4W
R	129	1	TM64K2PV2-14	R:VAR CERMET	10K OHM 20%
R	130	1	ERO25CKF2000	R:FXD MET FLM	200 OHM 1% 1/4W
R	131	1	ERO25CKF1001	R:FXD MET FLM	1K OHM 1% 1/4W
R	132	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	133	1	ERD25TJ202V	R:FXD CARBON	2K OHM 5% 1/4W
R	134	1	ERO25CKF1001	R:FXD MET FLM	1K OHM 1% 1/4W
R	135	1	ERD25TJ182V	R:FXD CARBON	1.8K OHM 5% 1/4W
R	136	1	ERD25TJ122V	R:FXD CARBON	1.2K OHM 5% 1/4W
R	137	1	ERD25TJ122V	R:FXD CARBON	1.2K OHM 5% 1/4W
R	139	1	ERD25TJ202V	R:FXD CARBON	2K OHM 5% 1/4W
R	141	1	ERD25TJ202V	R:FXD CARBON	2K OHM 5% 1/4W
R	142	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	143	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R	145	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R	146	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R	147	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R	148	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R	149	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	150	1	TM64K2PH-12	R:VAR CERMET	100 OHM 20%
R	151	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	152	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R	153	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	154	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	155	1	ERD25TJ511V	R:FXD CARBON	510 OHM 5% 1/4W
R	156	1	ERD25TJ511V	R:FXD CARBON	510 OHM 5% 1/4W
R	157	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R	158	1	ERD25TJ182V	R:FXD CARBON	1.8K OHM 5% 1/4W
R	159	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R	160	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R	161	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R	162	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R	164	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R	165	1	ERO25CKF1000	R:FXD MET FLM	100 OHM 1% 1/4W
R	166	1	ERO25CKF1000	R:FXD MET FLM	100 OHM 1% 1/4W
R	167	1	ERO25CKF1000	R:FXD MET FLM	100 OHM 1% 1/4W
R	168	1	ERD25TJ751V	R:FXD CARBON	750 OHM 5% 1/4W
R	169	1	ERD25TJ751V	R:FXD CARBON	750 OHM 5% 1/4W
R	171	1	ERD25TJ511V	R:FXD CARBON	510 OHM 5% 1/4W

ANALOG CIRCUIT DWG NO 4G204680

REF NO	QTY	PART NO	DESCRIPTION	
R 172	1	ERD25TJ511V	R:FXD CARBON	510 OHM 5% 1/4W
R 173	1	ERO25CKF4750	R:FXD MET FLM	475 OHM 1% 1/4W
R 174	1	ERO25CKF4750	R:FXD MET FLM	475 OHM 1% 1/4W
R 175	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 176	1	ERD25TJ272V	R:FXD CARBON	2.7K OHM 5% 1/4W
R 177	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R 178	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4W
R 179	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 180	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 181	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 182	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R 183	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R 184	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R 185	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R 186	1	ERO25CKF1000	R:FXD MET FLM	100 OHM 1% 1/4W
R 187	1	ERO25CKF1000	R:FXD MET FLM	100 OHM 1% 1/4W
R 190	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 191	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 194	1	ERD25TJ751V	R:FXD CARBON	750 OHM 5% 1/4W
R 195	1	ERD25TJ751V	R:FXD CARBON	750 OHM 5% 1/4W
R 200	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 201	1	ERD25TJ182V	R:FXD CARBON	1.8K OHM 5% 1/4W
R 202	1	ERD25TJ182V	R:FXD CARBON	1.8K OHM 5% 1/4W
R 203	1	ERD25TJ182V	R:FXD CARBON	1.8K OHM 5% 1/4W
R 204	1	ERD25TJ821V	R:FXD CARBON	820 OHM 5% 1/4W
R 205	1	ERD25TJ431V	R:FXD CARBON	430 OHM 5% 1/4W
R 205	1	ERD25TJ821V	R:FXD CARBON	820 OHM 5% 1/4W
R 206	1	ERD25TJ821V	R:FXD CARBON	820 OHM 5% 1/4W
R 207	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R 208	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R 209	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R 210	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 211	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 212	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 213	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 214	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 215	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 216	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 217	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 218	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 219	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 221	1	ERD25TJ271V	R:FXD CARBON	270 OHM 5% 1/4W
R 222	1	ERD25TJ271V	R:FXD CARBON	270 OHM 5% 1/4W
R 223	1	ERD25TJ271V	R:FXD CARBON	270 OHM 5% 1/4W
R 224	1	ERD25TJ271V	R:FXD CARBON	270 OHM 5% 1/4W

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REF NO	QTY	PART NO	DESCRIPTION	
R 225	1	ERD25TJ271V	R:FXD CARBON	270 OHM 5% 1/4W
R 226	1	ERD25TJ271V	R:FXD CARBON	270 OHM 5% 1/4W
R 227	1	ERD25TJ271V	R:FXD CARBON	270 OHM 5% 1/4W
R 228	1	ERD25TJ271V	R:FXD CARBON	270 OHM 5% 1/4W
R 230	1	ERD25TJ681V	R:FXD CARBON	680 OHM 5% 1/4W
R 231	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 232	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 233	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 234	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 235	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R 236	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R 237	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R 238	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R 239	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R 240	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R 241	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R 242	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R 243	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 244	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 245	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 246	1	ERD25TJ220V	R:FXD CARBON	22 OHM 5% 1/4W
R 247	1	ERD25TJ681V	R:FXD CARBON	680 OHM 5% 1/4W
R 301	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 302	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 303	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 304	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 305	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 306	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 307	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 308	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 309	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 310	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 311	1	ERO25CKF5111	R:FXD MET FLM	5.11K OHM 1% 1/4W
R 312	1	ERO25CKF1000	R:FXD MET FLM	100 OHM 1% 1/4W
R 313	1	ERO25CKF2431	R:FXD MET FLM	2.43K OHM 1% 1/4W
R 314	1	ERO25CKF1000	R:FXD MET FLM	100 OHM 1% 1/4W
R 320	1	ERO25CKF5111	R:FXD MET FLM	5.11K OHM 1% 1/4W
R 321	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 322	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 323	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 324	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 325	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 326	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 327	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 328	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W

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REF NO	QTY	PART NO	DESCRIPTION	
R 329	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 330	1	ERG1ANJ470	R:FXD MET OXD	47 OHM 5% 1W
R 331	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 332	1	ERO25CKF2431	R:FXD MET FLM	2.43K OHM 1% 1/4
R 333	1	ERO25CKF75R0	R:FXD MET FLM	75 OHM 1% 1/4W
R 334	1	EVMQ0GA01B51	R:VAR CERMET	50 OHM 20% 0.5W
R 349	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 350	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R 351	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 353	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 354	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 355	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 356	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 357	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 359	1	ERO25CKF7501	R:FXD MET FLM	7.5K OHM 1% 1/4W
R 360	1	EXBP88472J	R:NETWORK	4.7K OHM X8 5% 1
R 361	1	ERO25CKF5111	R:FXD MET FLM	5.11K OHM 1% 1/4
R 362	1	ERO25CKF5111	R:FXD MET FLM	5.11K OHM 1% 1/4
R 363	1	ERD25TJ242V	R:FXD CARBON	2.4K OHM 5% 1/4W
R 364	1	ERO25CKF5111	R:FXD MET FLM	5.11K OHM 1% 1/4
R 365	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 366	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R 367	1	ERO25CKF2002	R:FXD MET FLM	20K OHM 1% 1/4W
R 368	1	ERO25CKF4022	R:FXD MET FLM	40.2K OHM 1% 1/4
R 369	1	ERO25CKF1002	R:FXD MET FLM	10K OHM 1% 1/4W
R 370	1	ERO25CKF4991	R:FXD MET FLM	4.99K OHM 1% 1/4
R 371	1	ERO25CKF8062	R:FXD MET FLM	80.6K OHM 1% 1/4
R 372	1	ERD25TJ154V	R:FXD CARBON	150K OHM 5% 1/4W
R 373	1	ERD25TJ334V	R:FXD CARBON	330K OHM 5% 1/4W
R 375	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 376	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4W
R 377	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 378	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 379	1	ERD25TJ823V	R:FXD CARBON	82K OHM 5% 1/4W
R 380	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4W
R 381	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4W
R 382	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4W
R 400	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 402	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 403	1	ERD25TJ153V	R:FXD CARBON	15K OHM 5% 1/4W
R 404	1	ERD25TJ183V	R:FXD CARBON	18K OHM 5% 1/4W
R 405	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R 406	1	ERD25TJ512V	R:FXD CARBON	5.1K OHM 5% 1/4W
R 407	1	ERO25CKF3921	R:FXD MET FLM	3.92K OHM 1% 1/4
R 409	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W

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REF NO	QTY	PART NO	DESCRIPTION	
R 410	1	ERO25CKF1212	R:FXD MET FLM	12.1K OHM 1% 1/4W
R 411	1	ERD25TJ153V	R:FXD CARBON	15K OHM 5% 1/4W
R 412	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 413	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 414	1	ERD25TJ821V	R:FXD CARBON	820 OHM 5% 1/4W
R 415	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 416	1	ERO25CKF2000	R:FXD MET FLM	200 OHM 1% 1/4W
R 417	1	ERD25TJ202V	R:FXD CARBON	2K OHM 5% 1/4W
R 418	1	TM64K2PV2-53	R:VAR CERMET	5K OHM 20%
R 419	1	TM64K2PV2-53	R:VAR CERMET	5K OHM 20%
R 420	1	ERO25CKF1472	R:FXD MET FLM	14.7K OHM 1% 1/4W
R 422	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 423	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 424	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 425	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 426	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 427	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 428	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 429	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 430	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 431	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 432	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 433	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 434	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 435	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 436	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 437	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 438	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 439	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 440	1	ERD25TJ470V	R:FXD CARBON	47 OHM 5% 1/4W
R 441	1	TM64K2PV2-54	R:VAR CERMET	50K OHM 20%
R 442	1	TM64K2PV2-53	R:VAR CERMET	5K OHM 20%
R 443	1	TM64K2PV2-52	R:VAR CERMET	500 OHM 20%
R 444	1	TM64K2PV2-54	R:VAR CERMET	50K OHM 20%
R 445	1	TM64K2PV2-53	R:VAR CERMET	5K OHM 20%
R 446	1	TM64K2PV2-52	R:VAR CERMET	500 OHM 20%
R 447	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 448	1	ERD25TJ242V	R:FXD CARBON	2.4K OHM 5% 1/4W
R 449	1	ERD25TJ472V	R:FXD CARBON	4.7K OHM 5% 1/4W
R 450	1	ERD25TJ242V	R:FXD CARBON	2.4K OHM 5% 1/4W
R 451	1	ERO25CKF7500	R:FXD MET FLM	750 OHM 1% 1/4W
R 452	1	ERO25CKF1001	R:FXD MET FLM	1K OHM 1% 1/4W
R 453	1	ERD25TJ333V	R:FXD CARBON	33K OHM 5% 1/4W
R 454	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 455	1	ERD25TJ333V	R:FXD CARBON	33K OHM 5% 1/4W

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REF	NO	QTY	PART NO	DESCRIPTION	
R	456	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	457	1	ERD25TJ202V	R:FXD CARBON	2K OHM 5% 1/4W
R	458	1	ERD25TJ153V	R:FXD CARBON	15K OHM 5% 1/4W
R	459	1	ERD25TJ270V	R:FXD CARBON	27 OHM 5% 1/4W
R	460	1	ERD25TJ331V	R:FXD CARBON	330 OHM 5% 1/4W
R	461	1	ERO25CKF1001	R:FXD MET FLM	1K OHM 1% 1/4W
R	462	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	463	1	ERO25CKF1001	R:FXD MET FLM	1K OHM 1% 1/4W
R	464	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	465	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	466	1	ERD25TJ153V	R:FXD CARBON	15K OHM 5% 1/4W
R	467	1	ERD25TJ681V	R:FXD CARBON	680 OHM 5% 1/4W
R	468	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R	469	1	ERD25TJ681V	R:FXD CARBON	680 OHM 5% 1/4W
R	470	1	ERO25CKF5110	R:FXD MET FLM	511 OHM 1% 1/4W
R	471	1	ERO25CKF5110	R:FXD MET FLM	511 OHM 1% 1/4W
R	472	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	473	1	ERO25CKF1001	R:FXD MET FLM	1K OHM 1% 1/4W
R	474	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R	475	1	ERD25TJ331V	R:FXD CARBON	330 OHM 5% 1/4W
R	476	1	ERO25CKF1001	R:FXD MET FLM	1K OHM 1% 1/4W
R	477	1	ERD25TJ562V	R:FXD CARBON	5.6K OHM 5% 1/4W
R	478	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R	479	1	ERD25TJ182V	R:FXD CARBON	1.8K OHM 5% 1/4W
R	480	1	ERD25TJ272V	R:FXD CARBON	2.7K OHM 5% 1/4W
R	481	1	ERD25TJ203V	R:FXD CARBON	20K OHM 5% 1/4W
R	482	1	ERD25TJ203V	R:FXD CARBON	20K OHM 5% 1/4W
R	483	1	ERD25TJ203V	R:FXD CARBON	20K OHM 5% 1/4W
R	484	1	ERD25TJ203V	R:FXD CARBON	20K OHM 5% 1/4W
R	485	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	486	1	ERD25TJ751V	R:FXD CARBON	750 OHM 5% 1/4W
R	487	1	ERD25TJ362V	R:FXD CARBON	3.6K OHM 5% 1/4W
R	488	1	ERD25TJ272V	R:FXD CARBON	2.7K OHM 5% 1/4W
R	489	1	ERD25TJ362V	R:FXD CARBON	3.6K OHM 5% 1/4W
R	490	1	ERD25TJ751V	R:FXD CARBON	750 OHM 5% 1/4W
R	491	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R	495	1	ERO25CKF2742	R:FXD MET FLM	27.4K OHM 1% 1/4W
R	499	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
RT	1	1	ERTD2FCL101S	THERMISTOR	100 OHM 15%
RT	101	1	ERTD2FCL101S	THERMISTOR	100 OHM 15%

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REF NO	QTY	PART NO	DESCRIPTION	
U 80	1	UPC451C	IC:OP AMP	QUAD
U 201	1	HD10131	IC:ECL	DUAL D MASTER-SLAVE F-F
U 202	1	HD10131	IC:ECL	DUAL D MASTER-SLAVE F-F
U 203	1	HD10105	IC:ECL	TRIPLE 2-3-2-IN OR/NOR
U 204	1	HD10105	IC:ECL	TRIPLE 2-3-2-IN OR/NOR
U 205	1	HD10105	IC:ECL	TRIPLE 2-3-2-IN OR/NOR
U 321	1	TDC1001J	IC:ECL	8BIT A/D CONVERTER
U 322	1	TDC1001J	IC:ECL	8BIT A/D CONVERTER
U 351	1	TC40H174P	IC:C MOS	HEX D-TYPE FLIP-FLOP
U 352	1	TC40H374P	IC:C MOS	OCTAL D-TYPE F-F 3-STATE
U 353	1	UPC451C	IC:OP AMP	QUAD
U 401	1	UPC251C	IC:OP AMP	
U 402	1	DACIC10BC	IC:HYBRID	10-BIT D/A CONVERTER
U 403	1	DAC08CQ	IC:HYBRID	D/A CONVERTER
U 404	1	LM318P	IC:OP AMP	HIGH SPEED 8P DIL
U 405	1	TL071CP	IC:OP AMP	BI-FET LOW NOISE
U 406	1	LM318P	IC:OP AMP	HIGH SPEED 8P DIL
U 407	1	TL071CP	IC:OP AMP	BI-FET LOW NOISE
U 408	1	UPD4066C	IC:C MOS	QUAD BILATERAL SWITCH
VR 30	1	RD5.6EB3	DIODE:ZENER	5.7V 500MW
VR 123	1	RD5.6EB3	DIODE:ZENER	5.7V 500MW
VR 201	1	RD8.2EB3-2	DIODE:ZENER	8.2V 500MW (4G461806)
VR *201	1	RD8.2EB3#	DIODE:ZENER	8.2V 500MW
VR 202	1	RD8.2EB3-2	DIODE:ZENER	8.2V 500MW (4G461806)
VR *202	1	RD8.2EB3#	DIODE:ZENER	8.2V 500MW
VR 203	1	RD8.2EB3-2	DIODE:ZENER	8.2V 500MW (4G461806)
VR *203	1	RD8.2EB3#	DIODE:ZENER	8.2V 500MW
VR 204	1	RD8.2EB3-2	DIODE:ZENER	8.2V 500MW (4G461806)
VR *204	1	RD8.2EB3#	DIODE:ZENER	8.2V 500MW
VR 205	1	RD8.2EB3-2	DIODE:ZENER	8.2V 500MW (4G461806)
VR *205	1	RD8.2EB3#	DIODE:ZENER	8.2V 500MW
VR 206	1	RD8.2EB3-2	DIODE:ZENER	8.2V 500MW (4G461806)
VR *206	1	RD8.2EB3#	DIODE:ZENER	8.2V 500MW
VR 207	1	RD8.2EB3-2	DIODE:ZENER	8.2V 500MW (4G461806)
VR *207	1	RD8.2EB3#	DIODE:ZENER	8.2V 500MW
VR 208	1	RD8.2EB3-2	DIODE:ZENER	8.2V 500MW (4G461806)
VR *208	1	RD8.2EB3#	DIODE:ZENER	8.2V 500MW
VR 230	1	RD5.6EB3	DIODE:ZENER	5.7V 500MW
VR 247	1	RD5.6EB3	DIODE:ZENER	5.7V 500MW
VR 321	1	RD5.1EB2	DIODE:ZENER	5.1V 500MW
VR 351	1	RD5.1EB2	DIODE:ZENER	5.1V 500MW
VR 375	1	RD5.6EB3	DIODE:ZENER	5.7V 500MW
VR 401	1	RD7.5EB1	DIODE:ZENER	7.0V 500MW
VR 402	1	RD8.2EB3	DIODE:ZENER	8.2V 500MW

ANALOG CIRCUIT DWG NO 4G204680

REF NO	QTY	PART NO	DESCRIPTION	
XU 30	1	DILB16P-8J	IC SOCKET	16-PIN DIL
XU 321	1	DILB18P-8J	IC SOCKET	18-PIN DIL
XU 322	1	DILB18P-8J	IC SOCKET	18-PIN DIL

PANEL CIRCUIT DWG NO 4G204681

REF NO	QTY	PART NO	DESCRIPTION	
DS 1	1	SR503D	LED	RED
DS 2	1	SG203DA	LED	GREEN
DS 3	1	SY403DA	LED	UMBER
E 1	1	3G401295-1	P5730A PC BOARD	PANEL CIRCUIT
J 20	1	4G470792	P5730A CONNECTOR	ACQ-PANEL
J 21	1	4G470792	P5730A CONNECTOR	ACQ-PANEL
R 1	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 2	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 3	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
S 1	1	4G410672-1	P5730A PUSHB SW	STORAGE MODE
S 2	1	4G410672-1	P5730A PUSHB SW	STORAGE MODE
S 3	1	4G410672-1	P5730A PUSHB SW	STORAGE MODE
S 4	1	4G410670-1	P5730A PUSHB SW	START/STOP
S 5	1	4G410671-1	P5730A PUSHB SW	AUTO TRIG

INTERFACE CIRCUIT DWG NO 4G204682

REF NO	QTY	PART NO	DESCRIPTION	
C 1	1	ECEA1HS010	C:FXD AL ELECT	1UF +-20% 50V
C 2	1	ECEA1HS010	C:FXD AL ELECT	1UF +-20% 50V
C 3	1	ECEA1HS010	C:FXD AL ELECT	1UF +-20% 50V
C 4	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 5	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 6	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 7	1	ECQM1H103KZ	C:FXD FLM	0.01UF 10% 50V
C 8	1	ECQM1H103KZ	C:FXD FLM	0.01UF 10% 50V
C 9	1	ECCW1H100F5	C:FXD CER TC	10PF +-1.0PF 50V SL
C 10	1	ECKW1H391KB5	C:FXD CER HI-K	390PF +-10% 50V
C 11	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 12	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 13	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 14	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 15	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 16	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 17	1	ECEA1CS100	C:FXD AL ELECT	10UF +-20% 16V
C 20	1	ECKF1H473ZF	C:FXD CER HI-K	47000PF +80-20% 50V
C 26	1	ECCW1H331K5	C:FXD CER TC	330PF +-10% 50V SL
C 30	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 31	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 32	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 33	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 34	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 35	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 36	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 37	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 38	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 39	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 40	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 41	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 42	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 43	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 44	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 45	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 46	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 47	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 48	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 49	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 50	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 51	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 52	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 53	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 54	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V
C 55	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20% 25V

INTERFACE CIRCUIT DWG NO 4G204682

REF NO	QTY	PART NO	DESCRIPTION	
C 56	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 57	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 58	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 59	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 60	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 61	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 62	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 63	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 64	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 65	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 66	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 67	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 68	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
C 69	1	ECKD1E103ZFZ	C:FXD CER HI-K	10000PF +80-20%
CR 1	1	MA150TA	DIODE:SI	100MA 35V
CR 2	1	MA150TA	DIODE:SI	100MA 35V
CR 3	1	MA150TA	DIODE:SI	100MA 35V
CR 60	1	MA150TA	DIODE:SI	100MA 35V
E 1	1	2G401317-1	P5730A PC BOARD	INTERFACE
J 40	1	163683-3	CONNECTOR:PIN	CIS 5P 2.5PITCH
J 41	1	EMCS1050	CONNECTOR	10P L=500MM
J 42	1	EMCS1050	CONNECTOR	10P L=500MM
J 43	1	EMCS1050	CONNECTOR	10P L=500MM
J 45	1	EMCS1050	CONNECTOR	10P L=500MM
J 46	1	M3305P01	CONNECTOR:PIN	5P STRAIGHT
J 47	1	EMCS0550	CONNECTOR:PIN	PLUG 5P
J 48	1	M3305P01	CONNECTOR:PIN	5P STRAIGHT
J 49	1	M3310P01	CONNECTOR:PIN	10P STRAIGHT
J 50	1	M3310P01	CONNECTOR:PIN	10P STRAIGHT
J 51	1	M3310P01	CONNECTOR:PIN	10P STRAIGHT
J 52	1	M3310P01	CONNECTOR:PIN	10P STRAIGHT
J 53	1	M3310P01	CONNECTOR:PIN	10P STRAIGHT
J 54	1	M3310P01	CONNECTOR:PIN	10P STRAIGHT
J 55	1	M3310P01	CONNECTOR:PIN	10P STRAIGHT
J 56	1	M3310P01	CONNECTOR:PIN	10P STRAIGHT
K 1	1	AE5349	REED RELAY	5V,1A-20VDC 1PDT
L 9	1	ELEH101KA	COIL:CHOKE	100UH 10%
Q 1	1	2SC828A-RS	TSTR:SI NPN	PC:250MW FT:220M
Q 2	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MH
Q 3	1	2SC1359-AB	TSTR:SI NPN	PC:250MW FT:300M
Q 4	1	2SC1359-AB	TSTR:SI NPN	PC:250MW FT:300M
Q 5	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MH

INTERFACE CIRCUIT DWG NO 4G204682

REF NO	QTY	PART NO	DESCRIPTION	
Q 10	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 11	1	2SC1815TA-BL	TSTR:SI NPN	PC:400MW FT:80M
Q 21	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 22	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 23	1	2SC1815TA-BL	TSTR:SI NPN	PC:400MW FT:80M
Q 24	1	2SA564A-RS	TSTR:SI PNP	PC:250MW FT:80MHZ
Q 60	1	2SC1359-AB	TSTR:SI NPN	PC:250MW FT:300MHZ
R 1	1	ERD25TJ334V	R:FXD CARBON	330K OHM 5% 1/4W
R 2	1	ERD25TJ101V	R:FXD CARBON	100 OHM 5% 1/4W
R 3	1	ERD25TJ392V	R:FXD CARBON	3.9K OHM 5% 1/4W
R 4	1	ERD25TJ473V	R:FXD CARBON	47K OHM 5% 1/4W
R 6	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 7	1	ERD25TJ202V	R:FXD CARBON	2K OHM 5% 1/4W
R 8	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R 9	1	ERD25TJ751V	R:FXD CARBON	750 OHM 5% 1/4W
R 10	1	ERD25TJ512V	R:FXD CARBON	5.1K OHM 5% 1/4W
R 11	1	ERD25TJ473V	R:FXD CARBON	47K OHM 5% 1/4W
R 12	1	ERD25TJ201V	R:FXD CARBON	200 OHM 5% 1/4W
R 13	1	ERD25TJ911V	R:FXD CARBON	910 OHM 5% 1/4W
R 14	1	ERD25TJ302V	R:FXD CARBON	3K OHM 5% 1/4W
R 15	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 16	1	ERD25TJ512V	R:FXD CARBON	5.1K OHM 5% 1/4W
R 17	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 18	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 19	1	ERD25TJ131V	R:FXD CARBON	130 OHM 5% 1/4W
R 20	1	ERD25TJ202V	R:FXD CARBON	2K OHM 5% 1/4W
R 21	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 22	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 23	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R 24	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R 25	1	ERD25TJ471V	R:FXD CARBON	470 OHM 5% 1/4W
R 26	1	ERD25TJ202V	R:FXD CARBON	2K OHM 5% 1/4W
R 27	1	ERD25TJ333V	R:FXD CARBON	33K OHM 5% 1/4W
R 28	1	ERD25TJ123V	R:FXD CARBON	12K OHM 5% 1/4W
R 30	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R 31	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R 32	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R 33	1	ERD25TJ821V	R:FXD CARBON	820 OHM 5% 1/4W
R 34	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 35	1	ERD25TJ912V	R:FXD CARBON	9.1K OHM 5% 1/4W
R 38	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4W
R 40	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W

INTERFACE CIRCUIT DWG NO 4G204682

REF NO	QTY	PART NO	DESCRIPTION	
R 41	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R 42	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R 43	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R 44	1	ERD25TJ682V	R:FXD CARBON	6.8K OHM 5% 1/4
R 45	1	ERD25TJ682V	R:FXD CARBON	6.8K OHM 5% 1/4
R 46	1	ERD25TJ333V	R:FXD CARBON	33K OHM 5% 1/4W
R 47	1	ERD25TJ333V	R:FXD CARBON	33K OHM 5% 1/4W
R 50	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 51	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 52	1	ERD25TJ103V	R:FXD CARBON	10K OHM 5% 1/4W
R 53	1	ERD25TJ102V	R:FXD CARBON	1K OHM 5% 1/4W
R 54	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4
R 55	1	ERD25TJ104V	R:FXD CARBON	100K OHM 5% 1/4
R 56	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R 57	1	ERD25TJ223V	R:FXD CARBON	22K OHM 5% 1/4W
R 58	1	ERD25TJ332V	R:FXD CARBON	3.3K OHM 5% 1/4
R 59	1	ERD25TJ222V	R:FXD CARBON	2.2K OHM 5% 1/4
R 60	1	ERD25TJ331V	R:FXD CARBON	330 OHM 5% 1/4W
U 1	1	SN74LS153N	IC:TTL LS	DUAL 4-TO-1 LINE
U 2	1	SN74LS107N	IC:TTL LS	DUAL J-K FLIP-FL
U 3	1	SN74LS123N	IC:TTL LS	DUAL MONO MULTIV
U 11	1	SN74LS153N	IC:TTL LS	DUAL 4-TO-1 LINE
U 12	1	SN74LS153N	IC:TTL LS	DUAL 4-TO-1 LINE
U 13	1	SN74LS157N	IC:TTL LS	QUAD 2-TO-1 LINE
U 14	1	SN74LS03N	IC:TTL LS	QUAD 2-INPUT NAN
U 15	1	UPC251C	IC:OP AMP	

MAIN FRAME PANASO DWG NO 4G204964

REF NO	QTY	PART NO	DESCRIPTION	
	1	73J034	CRT SOCKET	
**	1	4G601210-0W	ADAPTER:BNC CONN	
*902	1	170148-1	CONNECTOR	MATE-N-LOK CONTACT SOC
*935	1	61173-1	CONNECTOR	MATE-N-LOK CONTACT SOC
B 3	1	FBP06B12H	FAN MOTOR	BRUSHLESS 12V 0.24A 6CM
C 1A	1	ECCD2H120KC	C:FXD CER TC	12PF +-10% 500V NPO
C 1B	1	ECCD2H120KC	C:FXD CER TC	12PF +-10% 500V NPO
CR 976A	1	S10SC4M	DIODE:PWR RECT	10A 40V
CR 976B	1	S10SC4R	DIODE:PWR RECT	10A 40V
CR 977	1	S4VB10F	DIODE:PWR RECT	4A 100V
CR 978	1	S4VB10F	DIODE:PWR RECT	4A 100V
E	4	4G760157-1H	SPACER:TERMINAL-A	
E	4	4G760158-1H	SPACER:TERMINAL-B	
E	4	50-6010	PC GUIDE	L=112.8MM
E 10	1	4G601212-1W	TERMINAL-E:GRD	
F **	1	IEC2AT	FUSE : TIME LAG	2A 250V 20MM
F 3	1	MT4194A	FUSE:TEMP	91 DEG CENTI 10A 250V
F 906	1	IEC2AT	FUSE : TIME LAG	2A 250V 20MM
J	1	CM3	CONNECTOR	PWR JACK 3P
J	3	4G601215-1W	TERMINAL T-10R	
J	1	4G601216-1W	TERMINAL T-10K	
J 1A	1	UG625UNI	CONNECTOR:COAX	BNC PANEL JACK
J 1B	1	UG625UNI	CONNECTOR:COAX	BNC PANEL JACK
J 501	1	UG625UNI	CONNECTOR:COAX	BNC PANEL JACK
J 990	1	UG625UNI	CONNECTOR:COAX	BNC PANEL JACK
JP	1	CM2	CONNECTOR	POWER AC125V 15A
L 901	1	4G431207-1	P5503G COIL	ROTATION
P	1	33-76B-2M	CABLE:PWR (UL,CSA)	125V 7A
P 1	1	M3110S22	CONNECTOR:PIN	10P L:200
P 2	1	M3110S22	CONNECTOR:PIN	10P L:200
P 3	1	M3110S21	CONNECTOR:PIN	10P L:100
P 4	1	M3110S21	CONNECTOR:PIN	10P L:100
P 5	1	M3305S22	CONNECTOR:PIN	5P L:200
P 6	1	48051	CONNECTOR	PV TERMINAL (REEL TYPE)
P 6	1	65039-032	CONNECTOR	LATCH HOUSING 5P
P 11	1	4G470793	P5730A CONNECTOR	CPU-ANA
P 33	1	M3305S13	CONNECTOR:PIN	5P L:300

MAIN FRAME PANASO DWG NO 4G204964

REF NO	QTY	PART NO	DESCRIPTION	
P 34	1	163690-3	CONNECTOR:PIN	CIS 5P 2.5PITCH
P 35	1	163690-3	CONNECTOR:PIN	CIS 5P 2.5PITCH
P 36	1	EMCB0530A56V	CONNECTOR	5P L=300MM
P 37	1	M3110S13	CONNECTOR:PIN	10P L:300
P 38	1	48051	CONNECTOR	PV TERMINAL (RE
P 38	1	65039-027	CONNECTOR	LATCH HOUSING 1
P 40	1	163690-3	CONNECTOR:PIN	CIS 5P 2.5PITCH
P 41	1	EMCB1030A56V	CONNECTOR	10P L=300MM
P 42	1	EMCB1050A56V	CONNECTOR	10P L=500MM
P 43	1	EMCB1030A56V	CONNECTOR	10P L=300MM
P 45	1	EMCB1030A56V	CONNECTOR	10P L=300MM
P 46	1	M3305S17	CONNECTOR:PIN	5P L:700
P 47	1	EMCB0520A56V	CONNECTOR	5P L=200MM
P 50	1	M3110S17	CONNECTOR:PIN	10P L:700
P 52	1	M3110S17	CONNECTOR:PIN	10P L:700
P 53	1	M3110S17	CONNECTOR:PIN	10P L:700
P 56	1	M3110S17	CONNECTOR:PIN	10P L:700
P 101	1	EMCB0510A51	CONNECTOR	5P L=100MM
P 103	1	EMCB0530A51	CONNECTOR	5P L=300MM
P 201	1	EMCB0510A51	CONNECTOR	5P L=100MM
P 203	1	EMCB0530A51	CONNECTOR	5P L=300MM
P 300	1	EMCB1020A56V	CONNECTOR	10P L=200MM
P 350	1	163690-3	CONNECTOR:PIN	CIS 5P 2.5PITCH
P 451	1	EMCB0520A56V	CONNECTOR	5P L=200MM
P 501	1	163690-3	CONNECTOR:PIN	CIS 5P 2.5PITCH
P 516	1	48051	CONNECTOR	PV TERMINAL (REF
P 516	1	65039-022	CONNECTOR	LATCH HOUSING 15
P 600	1	EMCB1010A56V	CONNECTOR	10P L=100MM
P 601	1	EMCB0530A56V	CONNECTOR	5P L=300MM
P 602	1	EMCB0510A56V	CONNECTOR	5P L=100MM
P 603	1	EMCB0520A56V	CONNECTOR	5P L=200MM
P 604	1	EMCB1020A56V	CONNECTOR	10P L=200MM
P 605	1	EMCB1030A56V	CONNECTOR	10P L=300MM
P 606	1	EMCB1050A56V	CONNECTOR	10P L=500MM
P 705	1	EMCB1010A56V	CONNECTOR	10P L=100MM
P 902	1	1-480303-0	CONNECTOR	MATE-N-LOK 3P PL
P 935	1	1-480287-0	CONNECTOR	
P 936	1	M3110S13	CONNECTOR:PIN	10P L:300
P 937	1	M3305S13	CONNECTOR:PIN	5P L:300
P 983	1	EMCB0550A56V	CONNECTOR	
R 1A	1	ERD25TJ510V	R:FXD CARBON	51 OHM 5% 1/4W
R 1B	1	ERD25TJ510V	R:FXD CARBON	51 OHM 5% 1/4W
R 500	1	ERD25TJ221V	R:FXD CARBON	220 OHM 5% 1/4W
R 1650	1	ERD25TJ272V	R:FXD CARBON	2.7K OHM 5% 1/4W

MAIN FRAME PANASO DWG NO 4G204964

REF	NO	QTY	PART NO	DESCRIPTION	
S		2	ESD3921T	LEVER SW	
S	1	1	EWTXDFS2050B	R:C-P ROTARY ENCODER	
S	1A	1	79S29	P5230A LEVER SW	AC-DC
S	1B	1	79S29	P5230A LEVER SW	AC-DC
S	901	1	81S15	REMOTE SW	OPERATION
S	901	1	81S16	REMOTE SW	DPDT 5A-125V
S	901	1	81S17	REMOTE SW	WIRE
T	902	1	3G430494-4	P5730A TRANSFORMER	POWER
U	1	1	UPC14305H	IC:V RGLTR	+5V 1A
U	2	1	UPC14305H	IC:V RGLTR	+5V 1A
U	3	1	UPC16312H-LN	IC:V RGLTR LOW NOISE	-12V 1A
V	**	1	YEAL25001W	LAMP:INCD	12V
V	901	1	150BYB31T	CRT	6-INCHI
V	910	1	YEAL25001W	LAMP:INCD	12V
V	911	1	YEAL25001W	LAMP:INCD	12V
V	912	1	YEAL25001W	LAMP:INCD	12V
W	450	1	74W010	DELAY LINE	DIL 120NS 186 OHM
XF		1	FEK031.1663	FUSE HOLDER CAP	5X20MM FUSE
XF	3	1	78M19-ST5	LUG TERMINAL	1P
XF	906	1	FEU031.1653	FUSE HOLDER	SEV,VDE,SEMKO,UL AND CSA

MECHA B DWG NO 4G302789

REF NO	QTY	PART NO	DESCRIPTION
	1	2G590612-1WB	P5730A CHASSIS
	1	2G660526-0A	P5730A FRAME
	1	2G660527-0AF	P5730A FRAME,FRONT-LH
	1	2G660528-0AF	P5730A FRAME,REAR-LH
	1	3G590682-1BB	P5730A SEPARATOR
	1	3G670586-0AF	P5730A EXTRUSION,LH
	23	3G760041-0C	PUSHBUTTON,5X6 GREEN
	3	4G540588-0P	P5730A CUSHION
	1	4G580616-0AF	P5730A BLANK PANEL
	1	4G617220-1GB	P5730A HOLDER,UPPER:SW
	1	4G617221-0GB	P5730A HOLDER,LOWER:SW
	2	4G617222-0EB	P5730A CLAMP:PCB
	1	4G634136-0AH	P5730A PANEL,FRONT
	1	4G634137-0J	P5730A LABEL:GPIB
	6	4G644153-2BB	STUD 3X10
	3	4G702669-0A	P5730A SPACER:LED
	4	4G720153-0FB	P562A BOSS 3MX5-1.5
	3	4G720154-0FB	P562A BOSS M3X10-1.5
	1	4G760225-0C	KNOB 18N6A

MECHA A PANASONIC DWG NO 4G302975

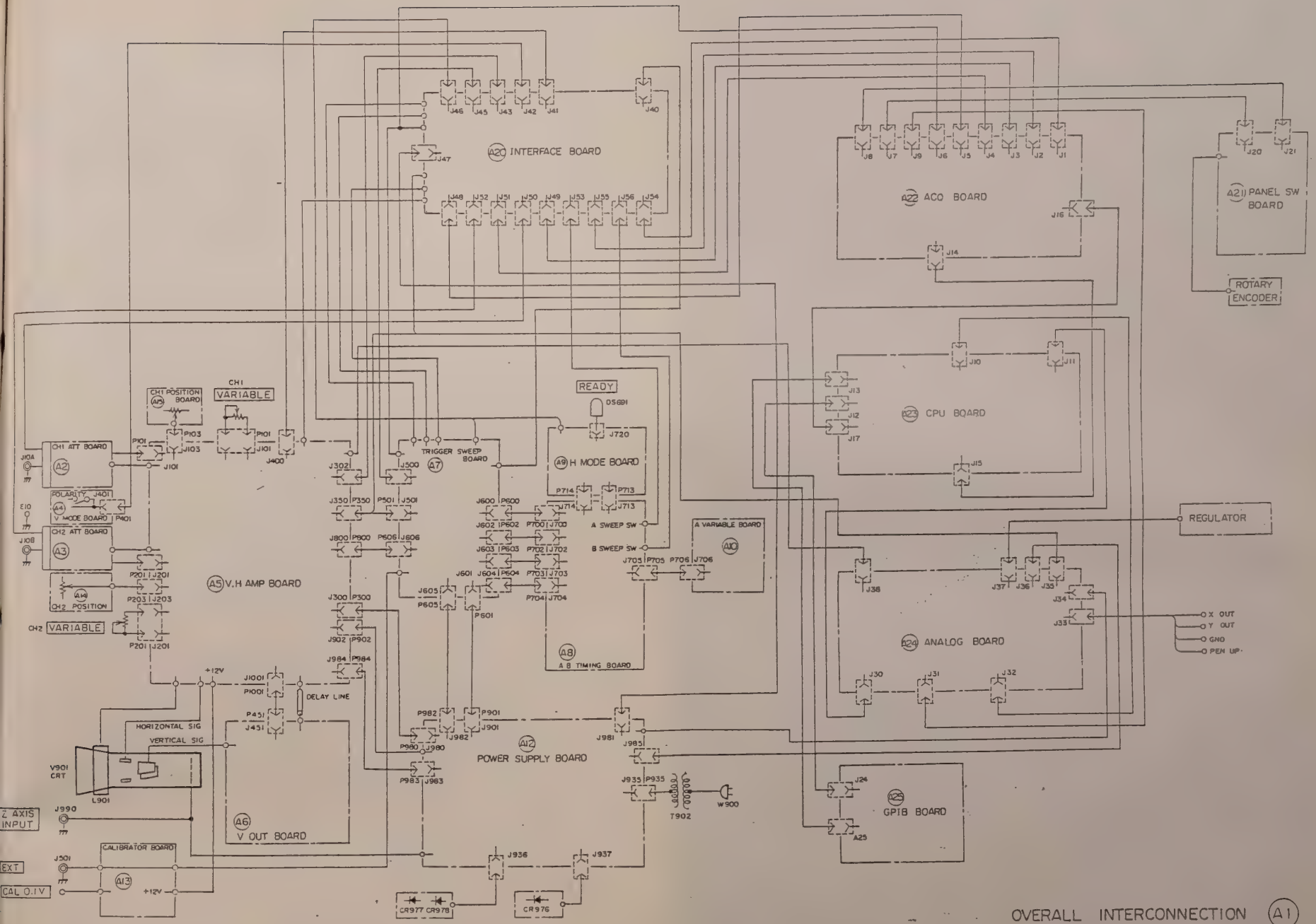
REF NO	QTY	PART NO	DESCRIPTION
	4	A76J-79M09	SUPPORT-219:PCB
	1	R76K-PLT3S	TIE:CABLE
	5	R76K-SB375-4	BUSHING-SB-375-4
	1	2G660525-1AF	P5730A FRAME,REAR
	1	2G660529-1AF	P5730A FRAME,FRONT
	1	2G760518-0A	P5512A ESCUTCHEON
	1	3G580752-1C	P5730A COVER,TOP
	1	3G580753-1CA	P5730A COVER,BTM
	1	3G590163-1FB	P5250A SHIELD-V.
	1	3G590164-0FB	P5250A PLATE,MEDIAL
	1	3G612425-1AB	P5230A HEAT SINK:POWER
	1	3G612426-0FB	P5230A CASE:HI-TENS
	1	3G612448-0YB	P5250A SHIELD:VERTICAL
	1	3G614034-0HB	P5256A SUPPORTER:CRT
	1	3G614068-0WB	P5730A HOLDER:I/F PCB
	1	3G614090-2WD	P5730A BRACKET:FAN
	1	3G631160-0AH	P5730A PANEL,RH
	1	3G631161-0AH	P5730A PANEL,CRT
	1	3G631162-1J	P5730A LABEL:RATING
	1	3G670035-0AF	P5250A EXTRUSION,RH
	1	3G670036-0AF	P5250A EXTRUSION,LH
	1	3G710402-0N	9551A BAG:PACKING
	6	3G760034-0C	KNOB,10N3A
	2	3G760035-0C	KNOB,10N6AS
	1	3G760037-0C	KNOB,14D6A
	3	3G760038-0C	KNOB,23F6A
	1	3G760040-0C	PUSHBUTTON,7X7 GREEN
	2	3G760041-0C	PUSHBUTTON,5X6 GREEN
	10	3G760042-0C	PUSHBUTTON,5X6 BLACK
	2	3G760544-0C	KNOB:LEVER SWITCH,J19-U
	1	4G530513-2K	P5220A FILTER:CRT
	1	4G540024-0B	P385B SPRING
	1	4G540156-0P	P5250A PAD:LIGHT LEAK
	1	4G540564-0F	P5512A SPRING:FILTER
	1	4G540592-0WB	P5730A CLAMP:NET
	1	4G550009-0E	HANDLE ASSEY,MIDDLE
	2	4G550020-0FF	P5250A HOLDER:HANDLE-M
	1	4G550032-0NB	P5503A STAND
	1	4G601087-0W	P5230A TERMINAL:CAL
	1	4G601211-0X	WRENCH KEY #2.5

MECHA A PANASONIC DWG NO 4G302975

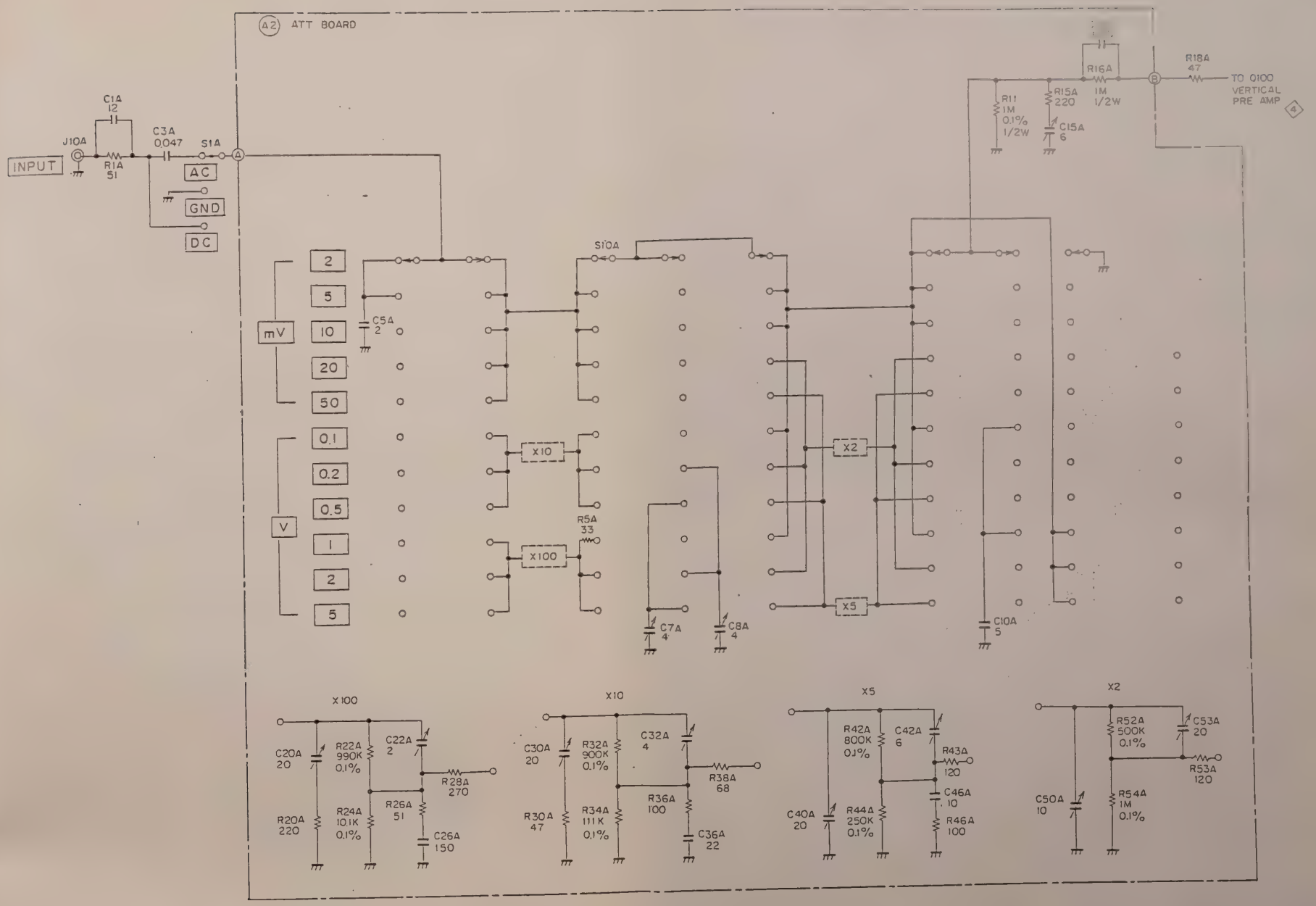
REF NO	QTY	PART NO	DESCRIPTION
	1	4G615353-0DB	P5100A BRACKET:PCB
	2	4G615438-0CB	P5250A COVER:ATTEN
	1	4G615439-1CB	P5250A HEAT SINK:V-OUT
	1	4G615440-0CB	P5250A HOLDER:PCB
	1	4G615528-2XB	P5503A BAND:CRT
	4	4G615647-0BB	P5230A SHIELD:PLATE ATT
	1	4G615651-0CB	P5230A HOLDER:PCBR
	1	4G615652-0CB	P5230A HOLDER:PCBL
	3	4G615653-1AB	P5230A CLAMP:TR
	1	4G615880-0YB	P5230A TERMINAL:CALIB
	1	4G617101-0WB	P5256A BRACKET:LAMP
	1	4G633135-0L	M8125 LABEL,HI-VOLTAGE
	1	4G634210-0W	P5730P LABEL:IDENT
	2	4G644138-3AB	SPACER 3X20
	1	4G644217-0AB	P5230A10 NUT M7X0.75
	1	4G650019-1M	P5503G SHIELD:CRT
	1	4G650516-0N	P6567A NET:FAN
	1	4G670017-2DB	P5511A HEAT SINK
	1	4G702268-0B	P5230A SPACER 3X47:INS
	1	4G702269-0B	P5230A SPACER 3X13
	2	4G702513-0B	P5250A SPACER 3X23.5
	1	4G712047-0N	9549A BAG:PACKING
	2	4G712649-0N	BAG:ACCESSORY,PLAIN
	1	4G720153-0FB	P562A BOSS 3MX5-1.5
	1	4G720198-0FB	P5510A BOSS M3X5-1.5
	1	4G720204-0FB	P5503A BOSS M3X7-1.5
	1	4G720209-0HB	P5230A BOSS M3X8-1.5
	1	4G720210-0FB	P5230A BOSS M3X5
	1	4G760036-2H	P525A SHAFT,SHORT:POT
	4	4G760073-0G	P544P FOOT
	5	4G760084-1H	P5230A EXTENSION SHAFT
	1	4G760122-0C	KNOB,10D3U
	3	4G760123-0C	KNOB,12D3U
	1	4G760125-0C	KNOB,23C6A
	4	4G760126-0G	P542A FOOT,REAR
	2	4G760127-2G	FOOT,RECTANGULAR-RH
	2	4G760128-2G	FOOT,RECTANGULAR-LH
	8	4G760131-1G	RUBBER:FOOT,RECTANGULAR
	3	4G760139-0X	P5102A COVER;SWITCH
	2	4G760170-0X	P5503A RUBBER,HLDR:CRT-A
	1	4G760171-0X	P5503A RUBBER,HLDR:CRT-B
	5	4G760188-0H	P5230A COLLAR:ROD
	1	4G760202-0L	P5250A BUSHING,HOLE
	1	4G780525-0N	P5231A GUARD:CRT
	1	4G780602-0N	P5730A FILTER:FAN

PAKAGE PANASONIC DWG NO 4G302976

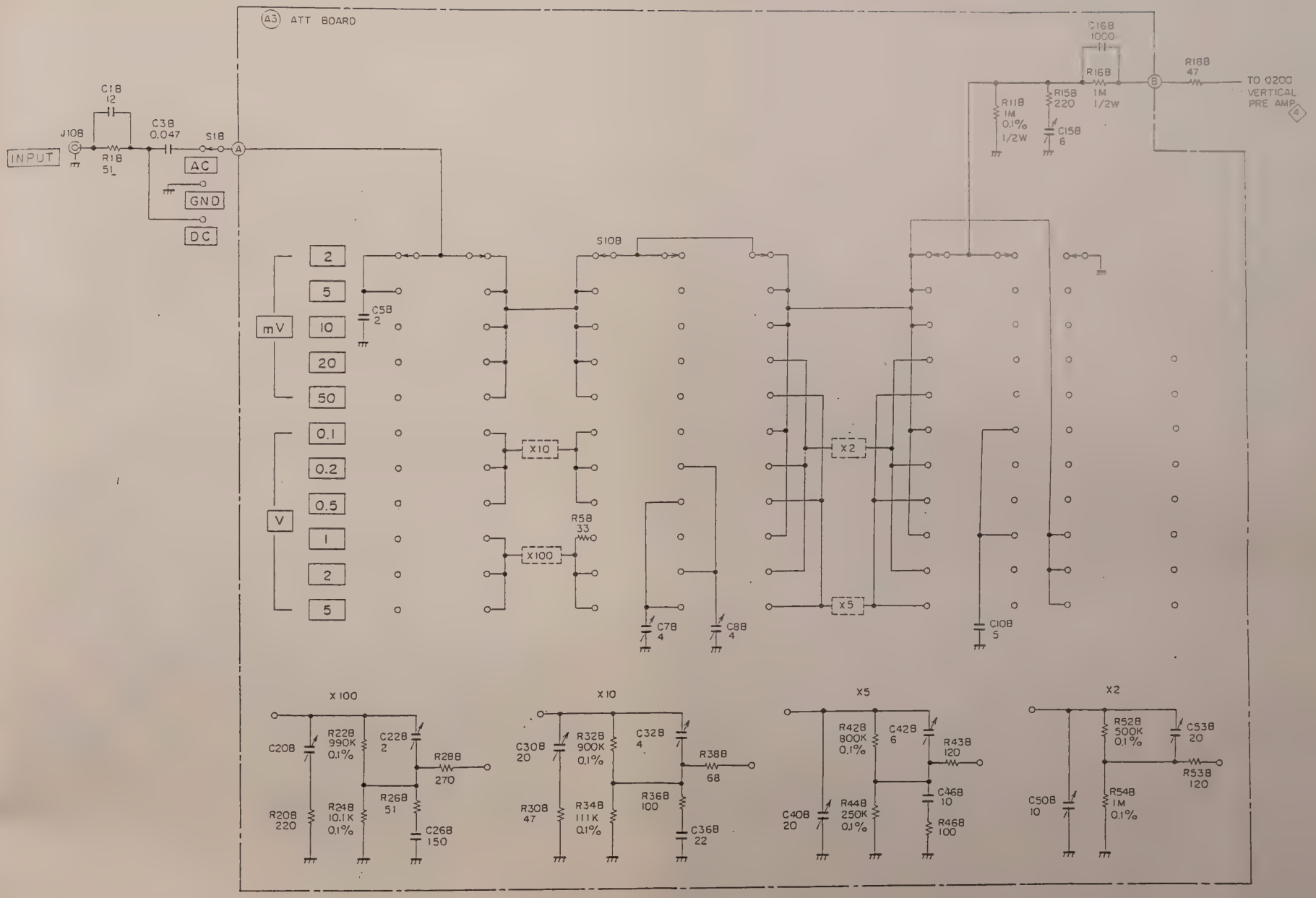
REF NO	QTY	PART NO	DESCRIPTION	
	4	3G710833-0W	P6801P LABEL:PC-L	
	1	4G712664-0A	KP-523 CARTON BOX	
	2	4G712665-0E	KP-523 CUSHION	
	1	523SN0	KP-523 PACKING KIT,PLAIN	
	1	VQ-056K3015	10:1 PROBE	
MM **	1	MEP5730P-0	INSTRUCTION MANUAL	4G880214



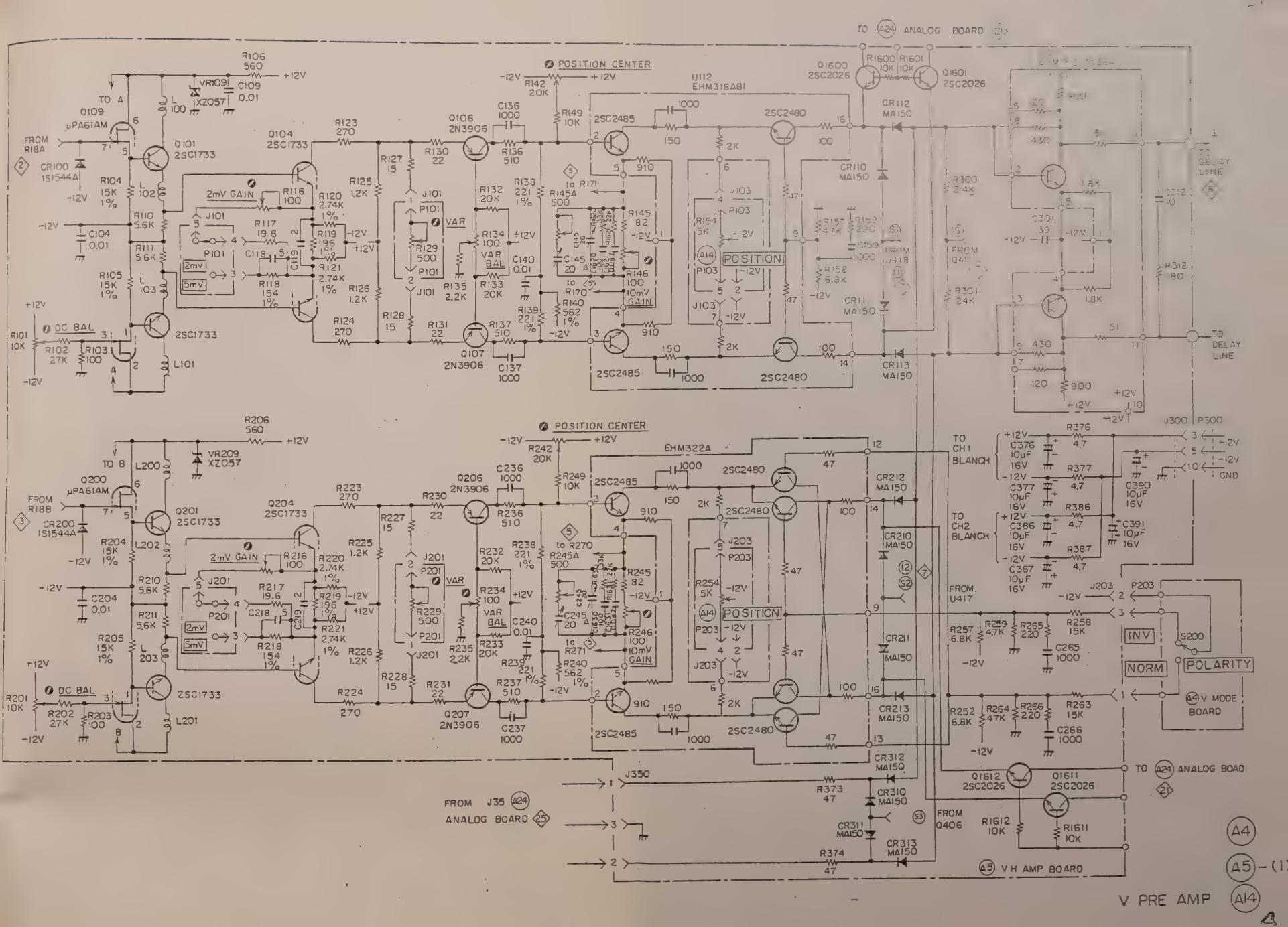
OVERALL INTERCONNECTION (A1)

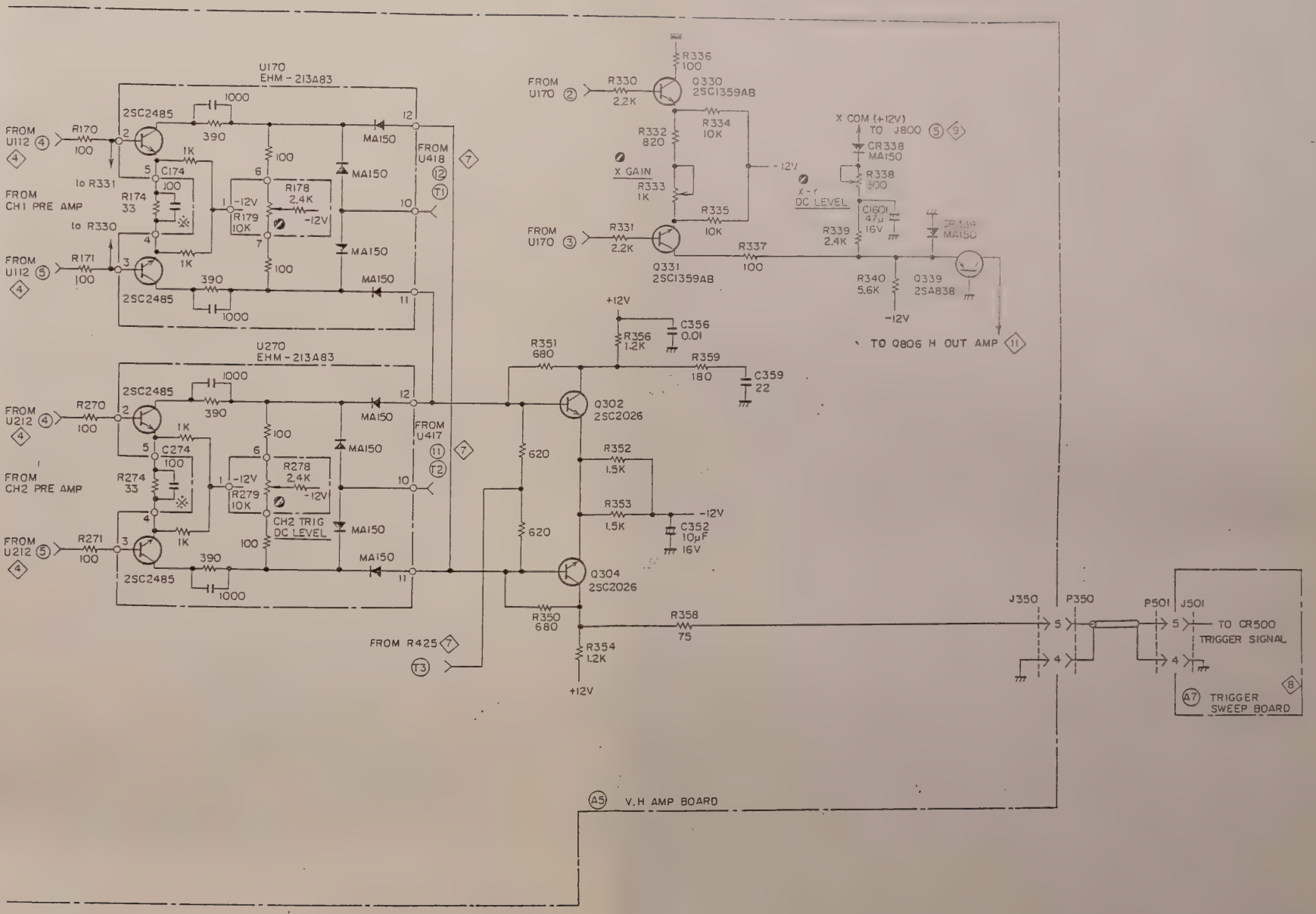


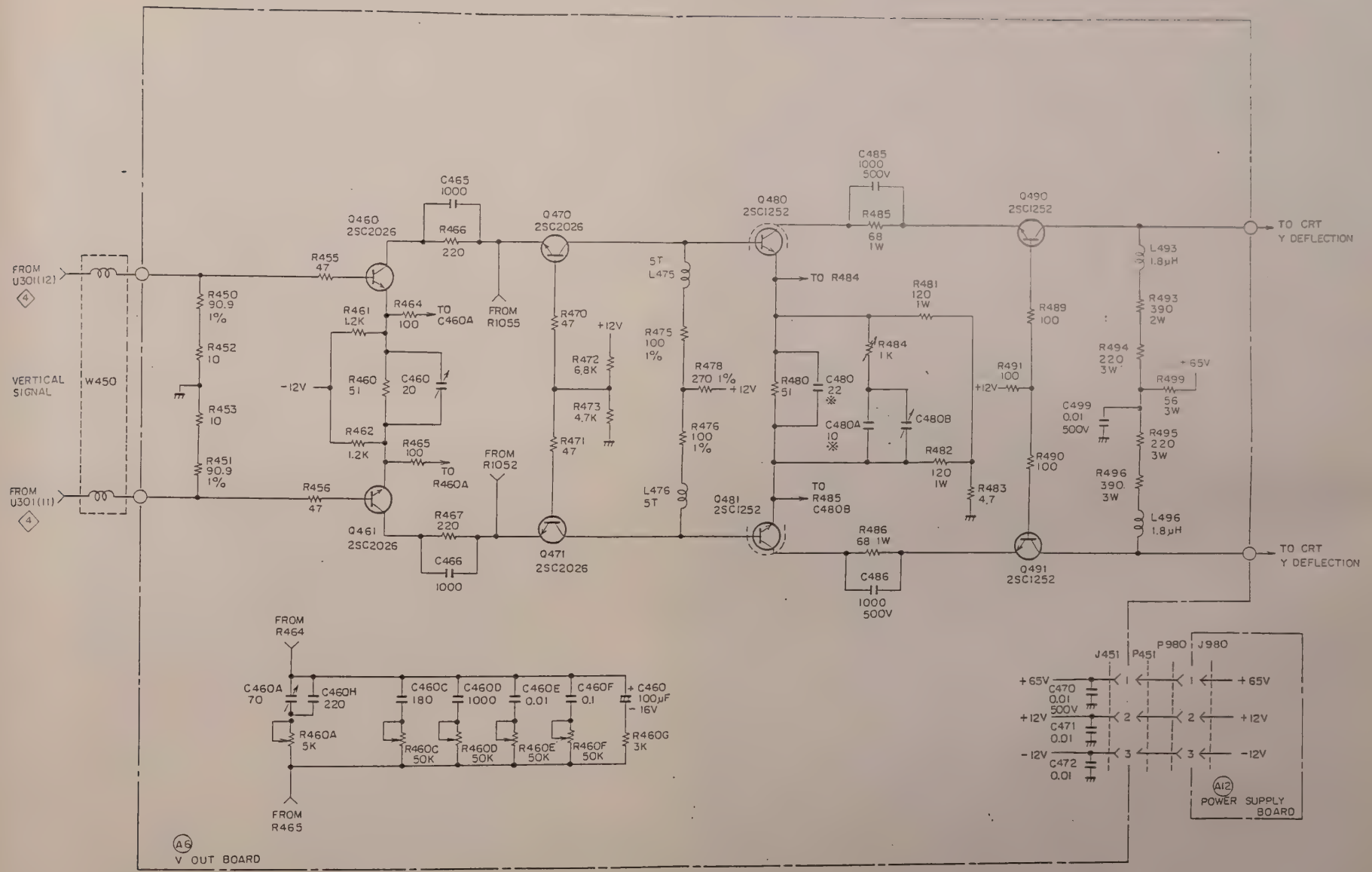
CH1 INPUT & ATTENUATOR (A2)



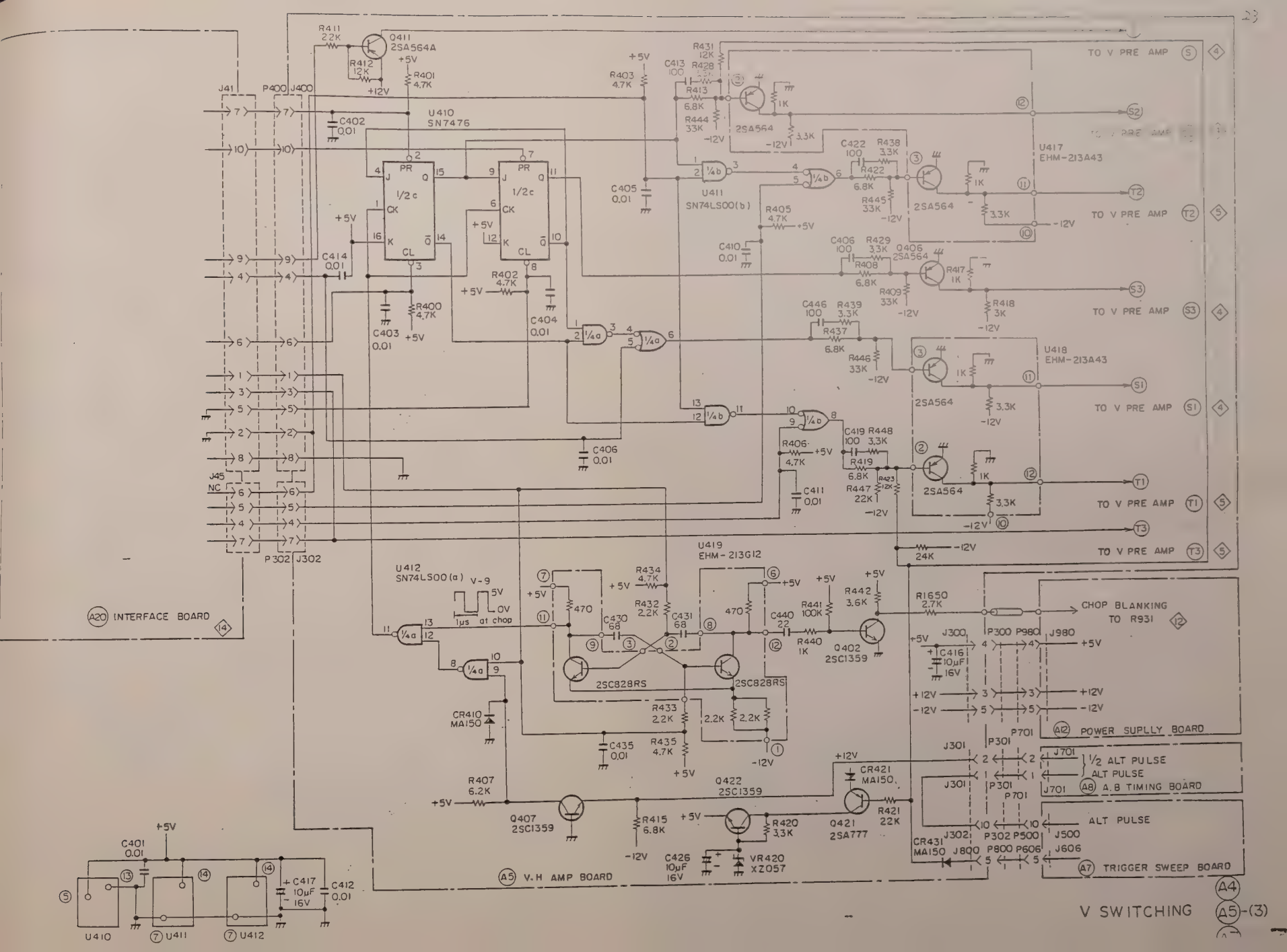
CH2 INPUT & ATTENUATOR (A3)

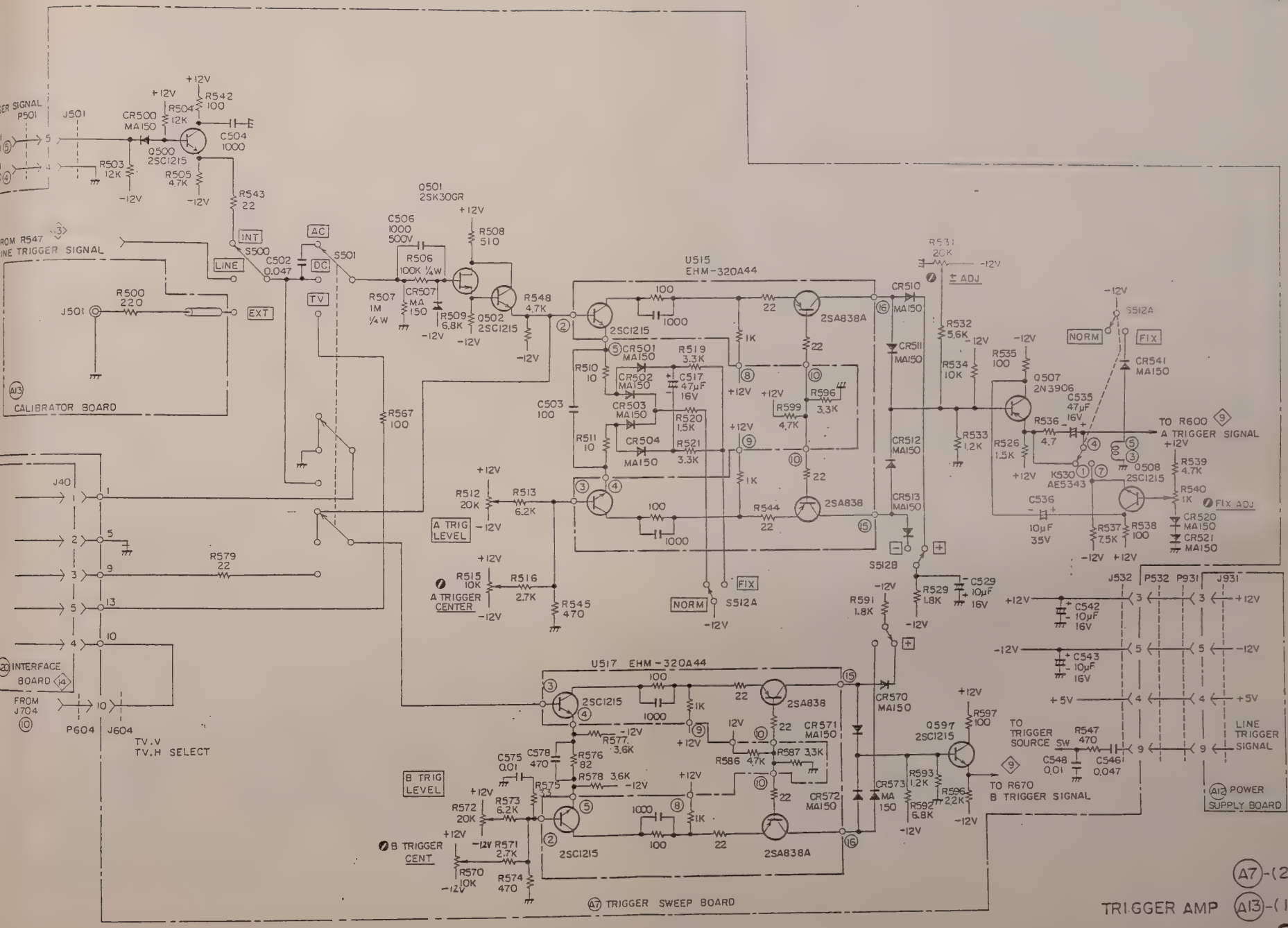

TO A24 ANALOG BOARD
POSITION CENTER
2mV GAIN
VAR
POSITION
DC BAL
EHM318A81
EHM322A
TO DELAY LINE
TO CH1 BLANCH
TO CH2 BLANCH
FROM U417
INV
NORM
POLARITY
S200
A4 V MODE BOARD
FROM J35 A24 ANALOG BOARD 25
TO A24 ANALOG BOAD 21
FROM 0406
A5 V H AMP BOARD
V PRE AMP A14


U170
EHM-213A83
2SC2485
FROM U112 ④
R170 100
FROM CH1 PRE AMP
R174 33
C174 100
to R331
to R330
R171 100
FROM U112 ⑤
1K
390
1000
100
MA150
R178 2.4K
R179 10K
-12V
FROM U418 ⑦ (12) T1
U270
EHM-213A83
FROM U212 ④
R270 100
FROM CH2 PRE AMP
R274 33
C274 100
FROM U212 ⑤
R271 100
R278 2.4K
R279 10K
CH2 TRIG DC LEVEL
FROM U417 ⑦ (11) T2
FROM R425 ⑦ T3
R336 100
FROM U170 ②
R330 2.2K
Q330 2SC1359AB
R332 820
R334 10K
X GAIN
R333 1K
R335 10K
FROM U170 ③
R331 2.2K
Q331 2SC1359AB
X COM (+12V) TO J800 ⑤ ⑨
CR338 MA150
R338 500
X-Y DC LEVEL
C160 47μ 16V
R339 2.4K
R337 100
R340 5.6K
Q339 2SA838
TO Q806 H OUT AMP ⑪
+12V
R356 1.2K
C356 0.01
R351 680
R359 180
C359 22
Q302 2SC2026
620
R352 1.5K
R353 1.5K
C352 10μF 16V
Q304 2SC2026
R350 680
R358 75
R354 1.2K
J350
P350
P501
J501
TO CR500 TRIGGER SIGNAL
A7 TRIGGER SWEEP BOARD ⑧
A5 V.H AMP BOARD


FROM U301(12)
FROM U301(11)
VERTICAL SIGNAL
W450
R450 90.9 1%
R451 90.9 1%
R452 10
R453 10
R455 47
R456 47
Q460 2SC2026
Q461 2SC2026
C465 1000
R466 220
C466 1000
R461 1.2K
R462 1.2K
R464 100
TO C460A
R465 100
TO R460A
FROM R1055
FROM R1052
-12V
R460 51
C460 20
R467 220
Q470 2SC2026
Q471 2SC2026
R470 47
+12V
R472 6.8K
R473 4.7K
R471 47
5T L475
R475 100 1%
L476 5T
R476 100 1%
R478 270 1%
+12V
Q480 2SC1252
Q481 2SC1252
TO R484
TO R485 C480B
C485 1000 500V
R485 68 1W
R486 68 1W
C486 1000 500V
R480 51
C480 22 ※
C480A 10 ※
C480B
R484 1K
R481 120 1W
R482 120 1W
R483 4.7
Q490 2SC1252
Q491 2SC1252
R489 100
R490 100
R491 100
+12V
L493 1.8μH
R493 390 2W
R494 220 3W
+65V
R499 56 3W
C499 0.01 500V
R495 220 3W
R496 390 3W
L496 1.8μH
TO CRT Y DEFLECTION
TO CRT Y DEFLECTION
FROM R464
C460A 70
C460H 220
C460C 180
C460D 1000
C460E 0.01
C460F 0.1
+ C460 100μF - 16V
R460A 5K
R460C 50K
R460D 50K
R460E 50K
R460F 50K
R460G 3K
FROM R465
A6 V OUT BOARD
J451
P451
P980
J980
+65V
+12V
-12V
C470 0.01 500V
C471 0.01
C472 0.01
A12 POWER SUPPLY BOARD

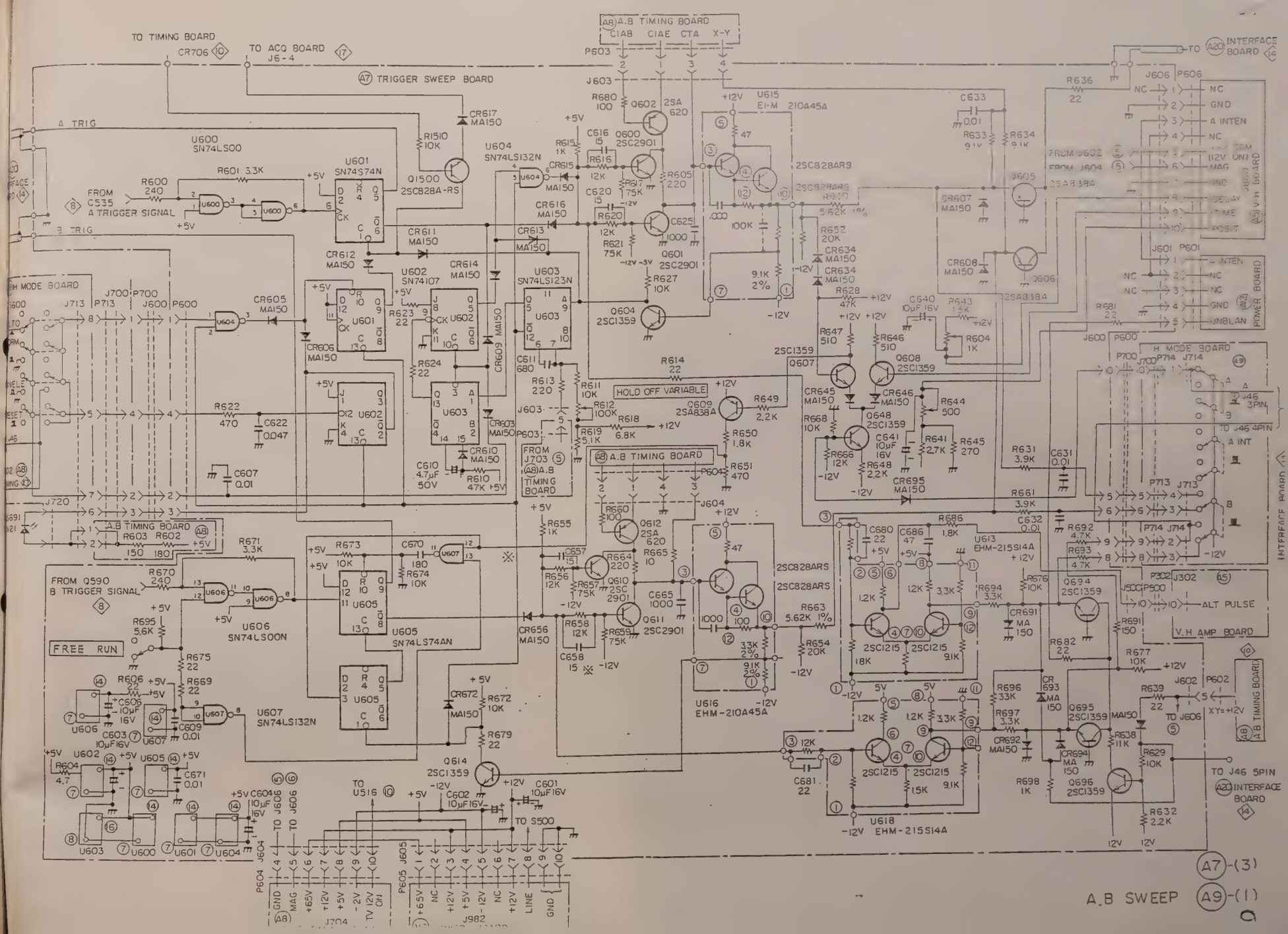
V OUT AMP (A6)-(1)

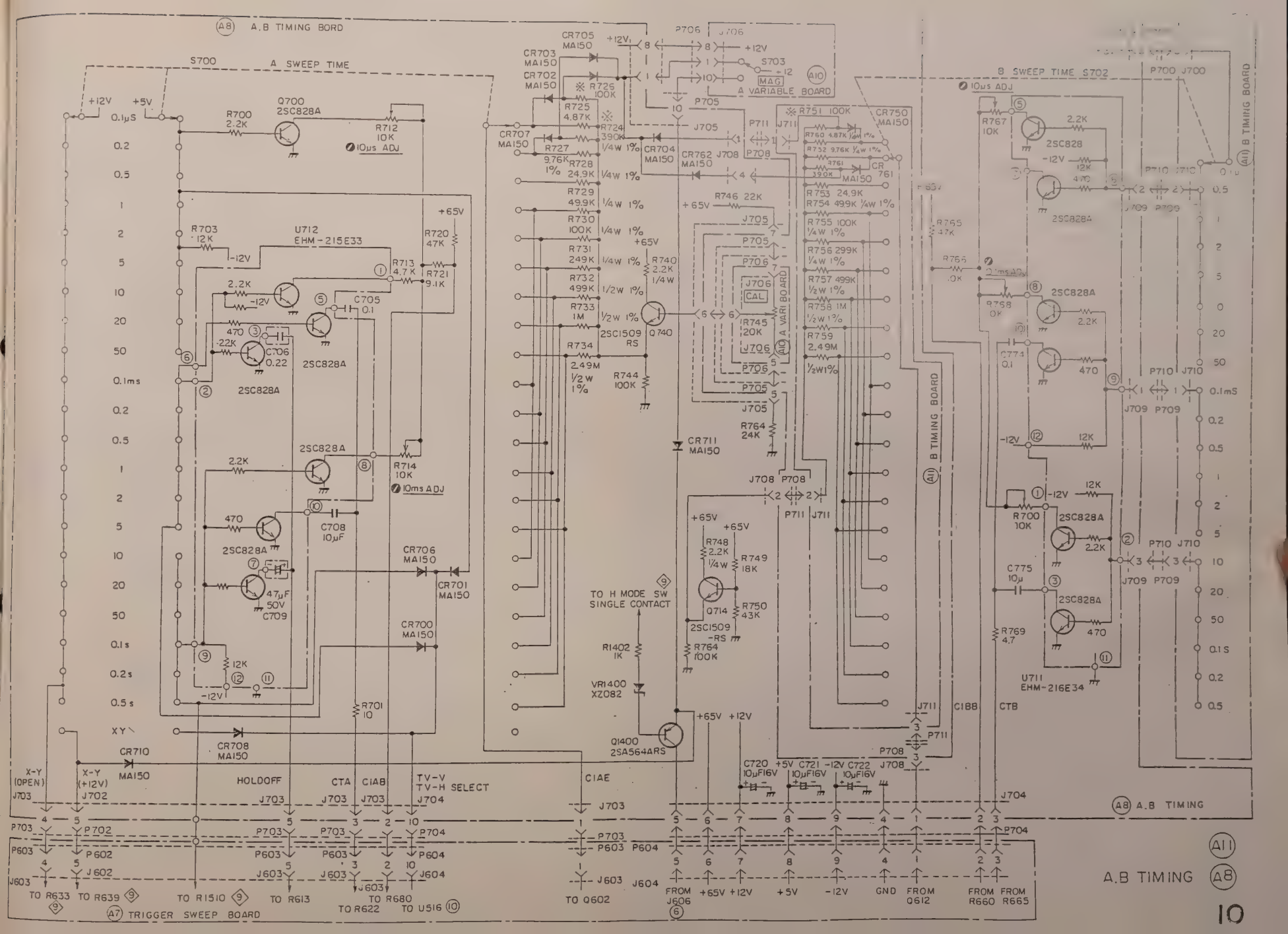

U410 SN7476
U411 SN74LS00(b)
U412 SN74LS00(a)
U417 EHM-213A43
U418 EHM-213A43
U419 EHM-213G12
Q411 2SA564A
Q406 2SA564
Q402 2SC1359
Q407 2SC1359
Q422 2SC1359
Q421 2SA777
2SA564
2SC828RS
TO V PRE AMP
CHOP BLANKING TO R931
A20 INTERFACE BOARD
A12 POWER SUPLLY BOARD
A8 A.B TIMING BOARD
A7 TRIGGER SWEEP BOARD
A5 V.H AMP BOARD
ALT PULSE
1/2 ALT PULSE
V SWITCHING A5-(3)

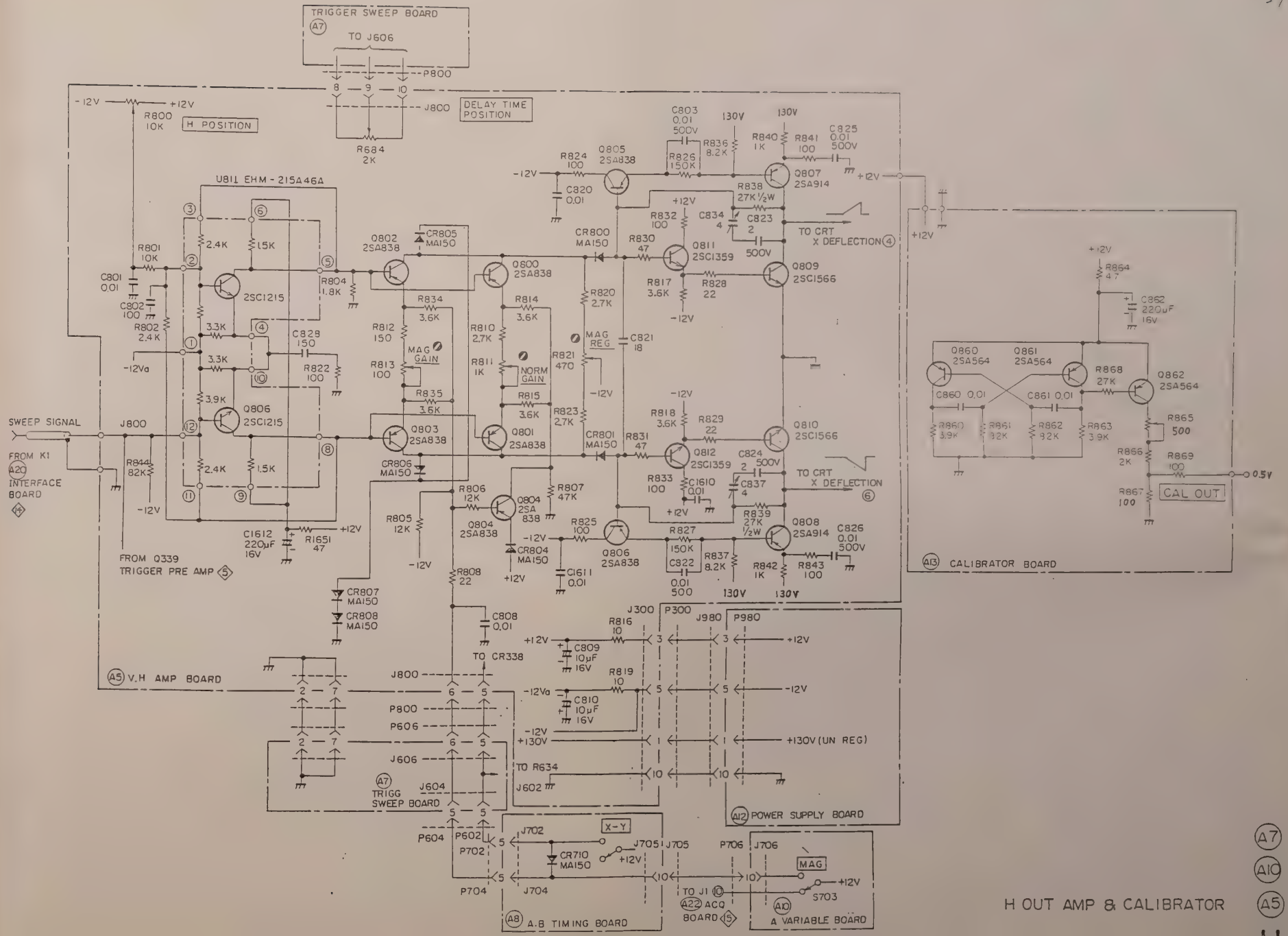


A7-(2)

TRIGGER AMP A13-(1)

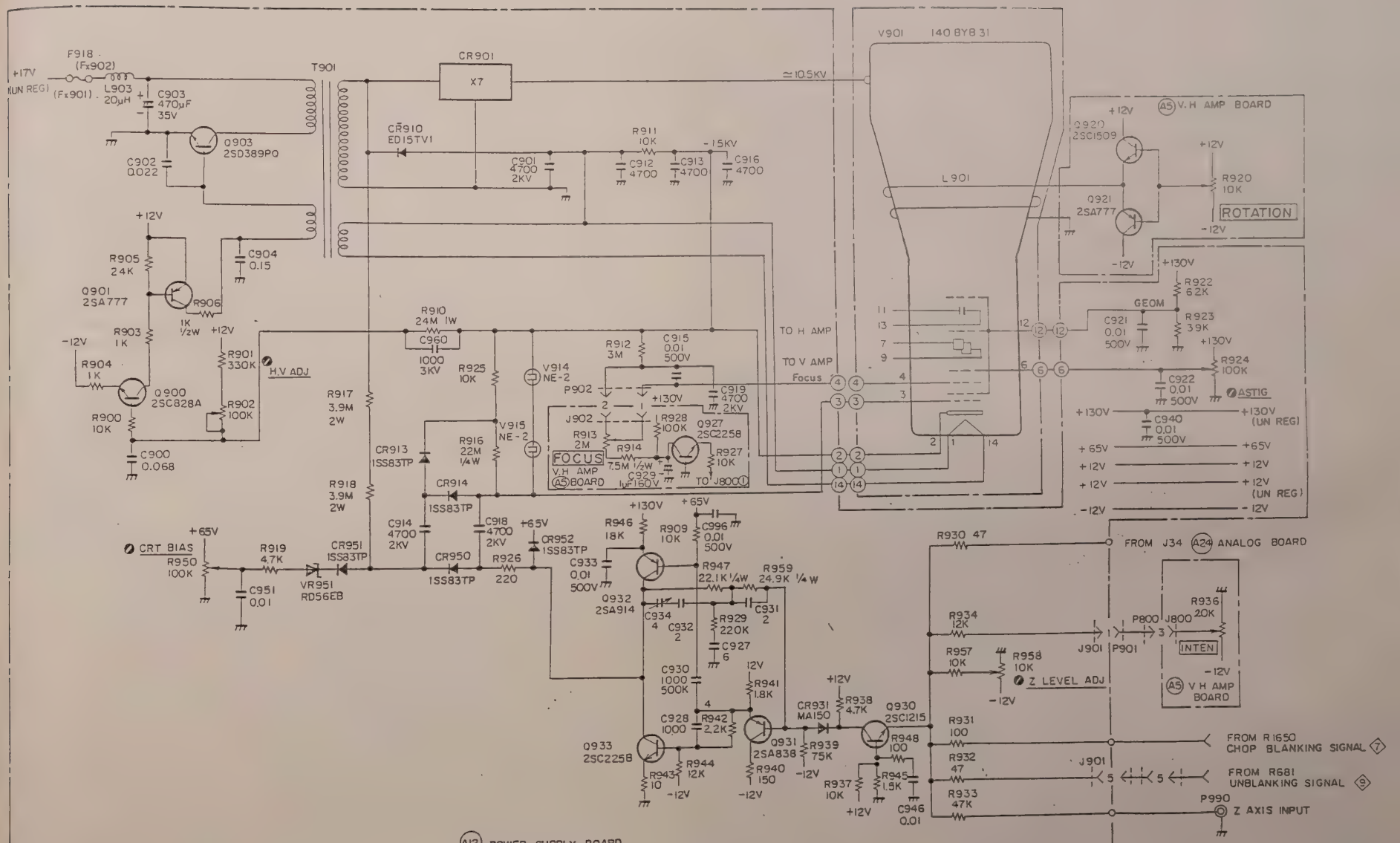

TO TIMING BOARD
CR706
TO ACQ BOARD J6-4
A7 TRIGGER SWEEP BOARD
A8 A.B TIMING BOARD
CIAB CIAE CTA X-Y
P603
J603
TO A20 INTERFACE BOARD
A TRIG
B TRIG
U600 SN74LS00
U601 SN74S74N
U602 SN74107
U603 SN74LS123N
U604 SN74LS132N
U605 SN74LS74AN
U606 SN74LS00N
U607 SN74LS132N
Q1500 2SC828A-RS
Q601 2SC2901
Q602 2SA 620
Q604 2SC1359
Q607 2SC1359
Q608 2SC1359
Q609 2SA838A
Q610 2SC 2901
Q611 2SC2901
Q612 2SA 620
Q614 2SC1359
Q640 2SA838A
Q648 2SC1359
Q694 2SC1359
Q695 2SC1359
Q696 2SC1359
U615 EHM-210A45A
U616 EHM-210A45A
U618 EHM-215S14A
U613 EHM-215S14A
2SC828ARS
2SC1215
FREE RUN
HOLD OFF VARIABLE
H MODE BOARD
V.H AMP BOARD
V.H INTERFACE BOARD
POWER BOARD
A.B TIMING BOARD
TO J46 3PIN
TO J46 4PIN
TO J46 5PIN
A INT
ALT PULSE
TO S500
TO U516
TO J606
TO J606
A7-(3)
A9-(1)
A.B SWEEP


A8 A,B TIMING BORD
S700 A SWEEP TIME
+12V +5V
0.1μS
0.2
0.5
1
2
5
10
20
50
0.1ms
0.2
0.5
1
2
5
10
20
50
0.1s
0.2s
0.5s
XY
Q700 2SC828A
R700 2.2K
R712 10K
10μs ADJ
R703 12K
-12V
U712 EHM-215E33
+65V
R720 47K
R713 4.7K
R721 9.1K
2.2K
C705 0.1
470
C706 0.22
22K
2SC828A
2SC828A
2SC828A
2.2K
R714 10K
10ms ADJ
470
C708 10μF
2SC828A
47μF 50V C709
CR706 MA150
CR701 MA150
CR700 MA150
12K
R701 10
CR710 MA150
CR708 MA150
CR705 MA150
CR703 MA150
CR702 MA150
R725 100K
R725 4.87K
R724 390K 1/4W 1%
R727 9.76K
R728 1% 24.9K 1/4W 1%
R729 49.9K 1/4W 1%
R730 100K 1/4W 1%
R731 249K 1/4W 1%
R732 499K 1/2W 1%
R733 1M 1/2W 1%
2SC1509 RS Q740
R734 2.49M 1/2W 1%
R744 100K
CR707 MA150
CR704 MA150
CR762 MA150
R746 22K
+65V
R740 2.2K 1/4W
R745 20K
R764 24K
CR711 MA150
R748 2.2K 1/4W
R749 18K
Q714 2SC1509 -RS
R750 43K
R764 100K
TO H MODE SW SINGLE CONTACT
R1402 1K
VR1400 XZ082
Q1400 2SA564ARS
+65V +12V
P706 J706
+12V
S703 MAG
A VARIABLE BOARD
A10
P705 J705
P711 J711
P708
J706 CAL
A10 A VARI BOARD
R751 100K
R760 4.87K 1/4W 1%
R752 9.76K 1/4W 1%
R761 390K
CR 761 MA150
CR750 MA150
R753 24.9K
R754 499K 1/4W 1%
R755 100K 1/4W 1%
R756 299K 1/4W 1%
R757 499K 1/2W 1%
R758 1M 1/2W 1%
R759 2.49M 1/2W 1%
B SWEEP TIME S702
10μs ADJ
P700 J700
A11 B TIMING BOARD
R767 10K
2.2K
2SC828
-12V
12K
470
2SC828A
P710 J710
J709 P709
0.1μ
0.5
1
2
5
10
20
50
0.1mS
0.2
0.5
1
2
5
10
20
50
0.1S
0.2
0.5
R765 47K
R766 10K
10ms ADJ
R768 0K
2SC828A
2.2K
C774 0.1
470
-12V
12K
R700 10K
2SC828A
2.2K
C775 10μ
2SC828A
470
R769 4.7
U711 EHM-216E34
C188
CTB
C720 10μF16V
C721 10μF16V
C722 10μF16V
+5V -12V
J708
P711
P708
J704
A8 A,B TIMING
X-Y (OPEN)
X-Y (+12V)
J703
J702
HOLDOFF
CTA
CIAB
TV-V
TV-H SELECT
CIAE
P703
P702
P704
P603
P602
P604
J603
J602
J604
TO R633
TO R639
TO R1510
TO R613
TO R622
TO R680
TO U516
TO Q602
FROM J606
+65V +12V
+5V
-12V
GND
FROM Q612
FROM R660
FROM R665
A7 TRIGGER SWEEP BOARD
A11
A.B TIMING
A8
10



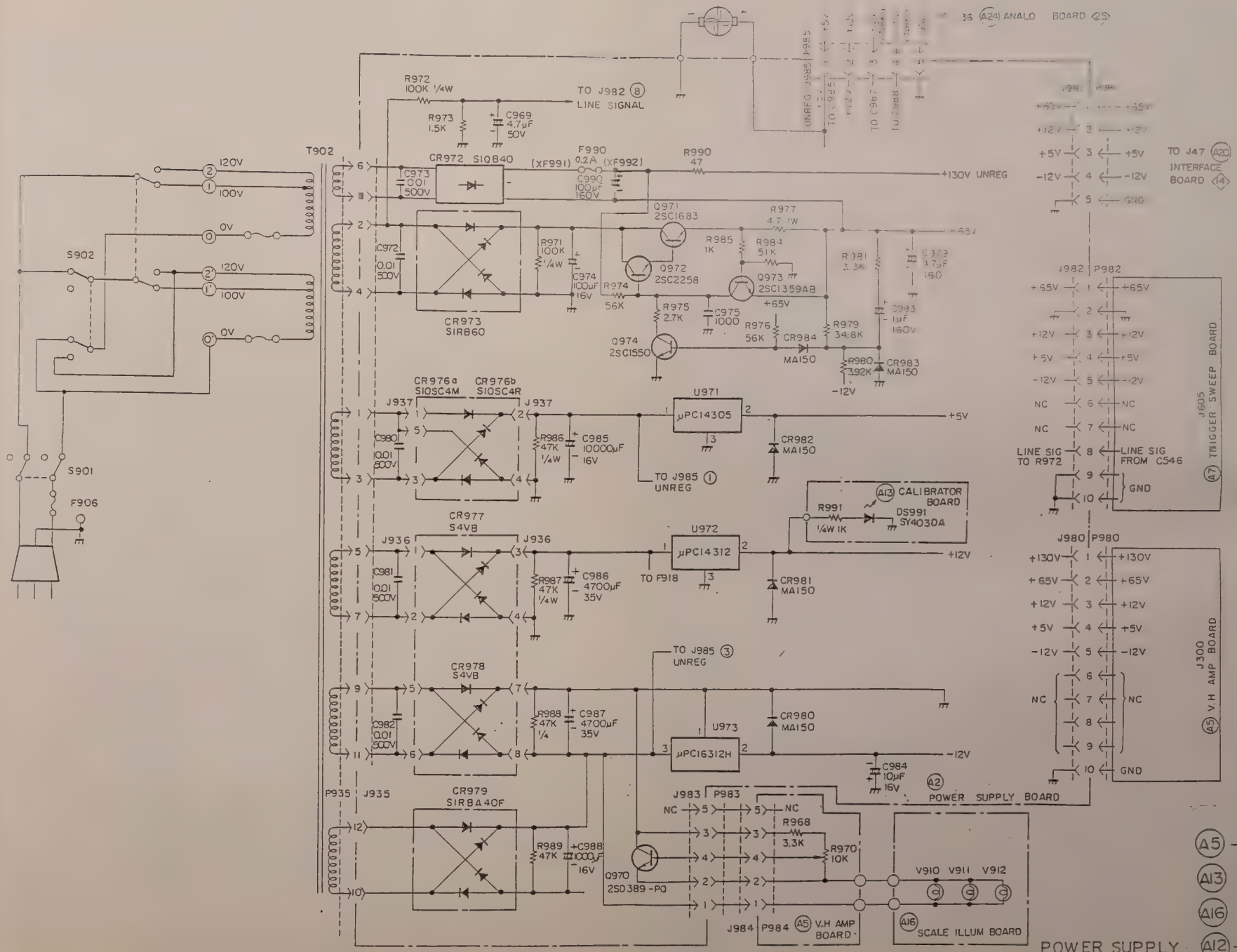
H OUT AMP & CALIBRATOR

A7
A10
A5

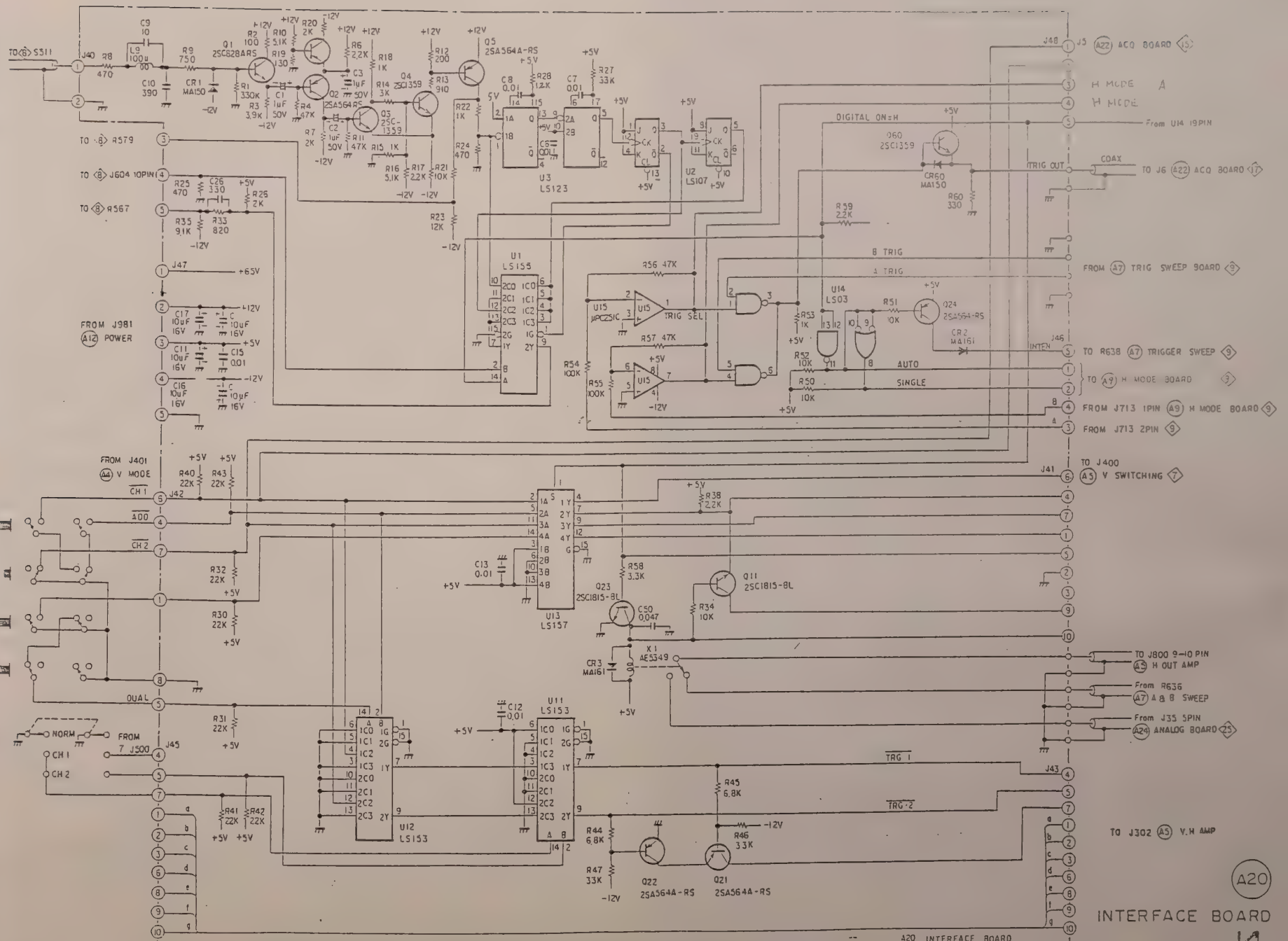


(A5)-(5)

CRT & Z AXIS (A12)-(1)

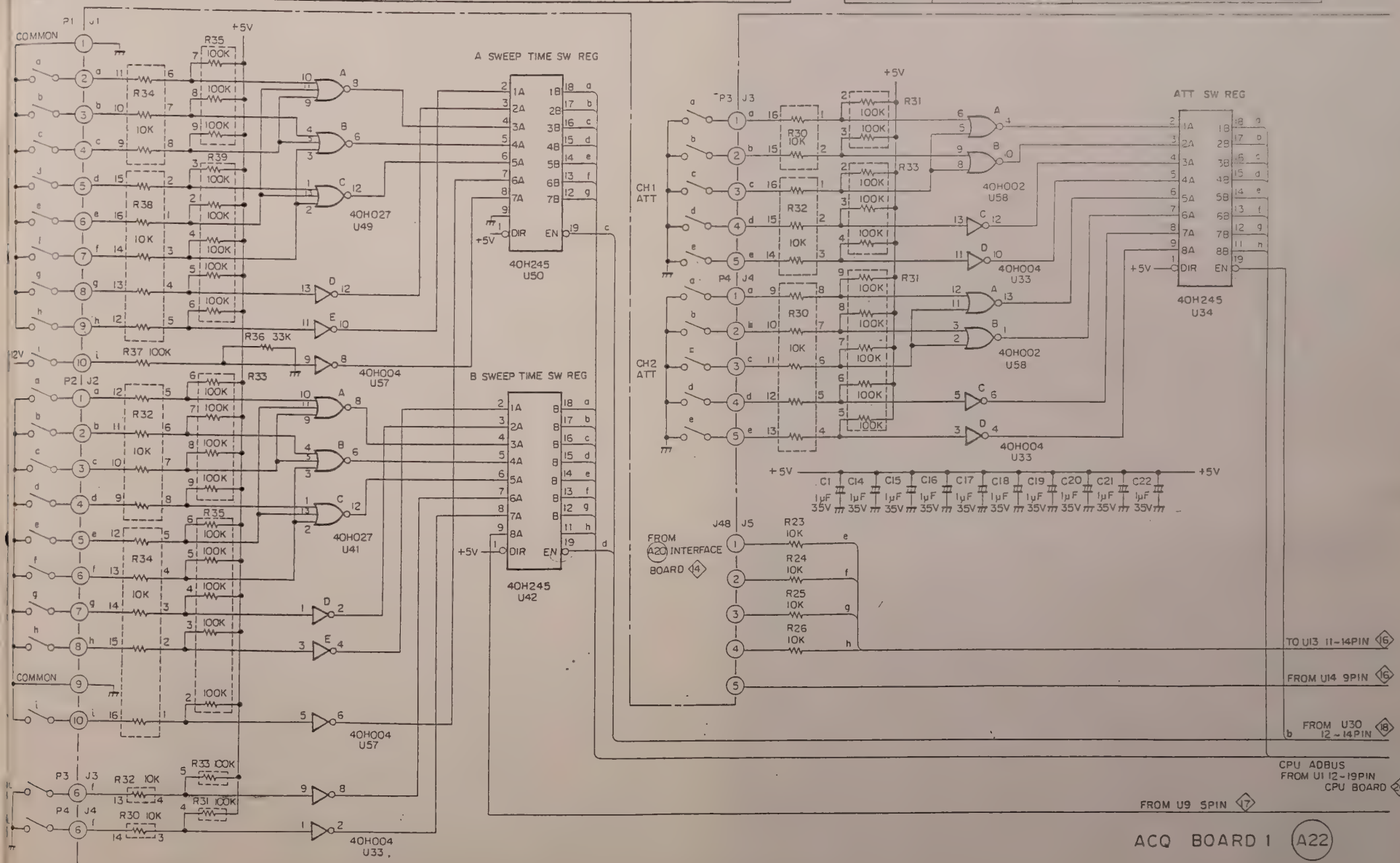


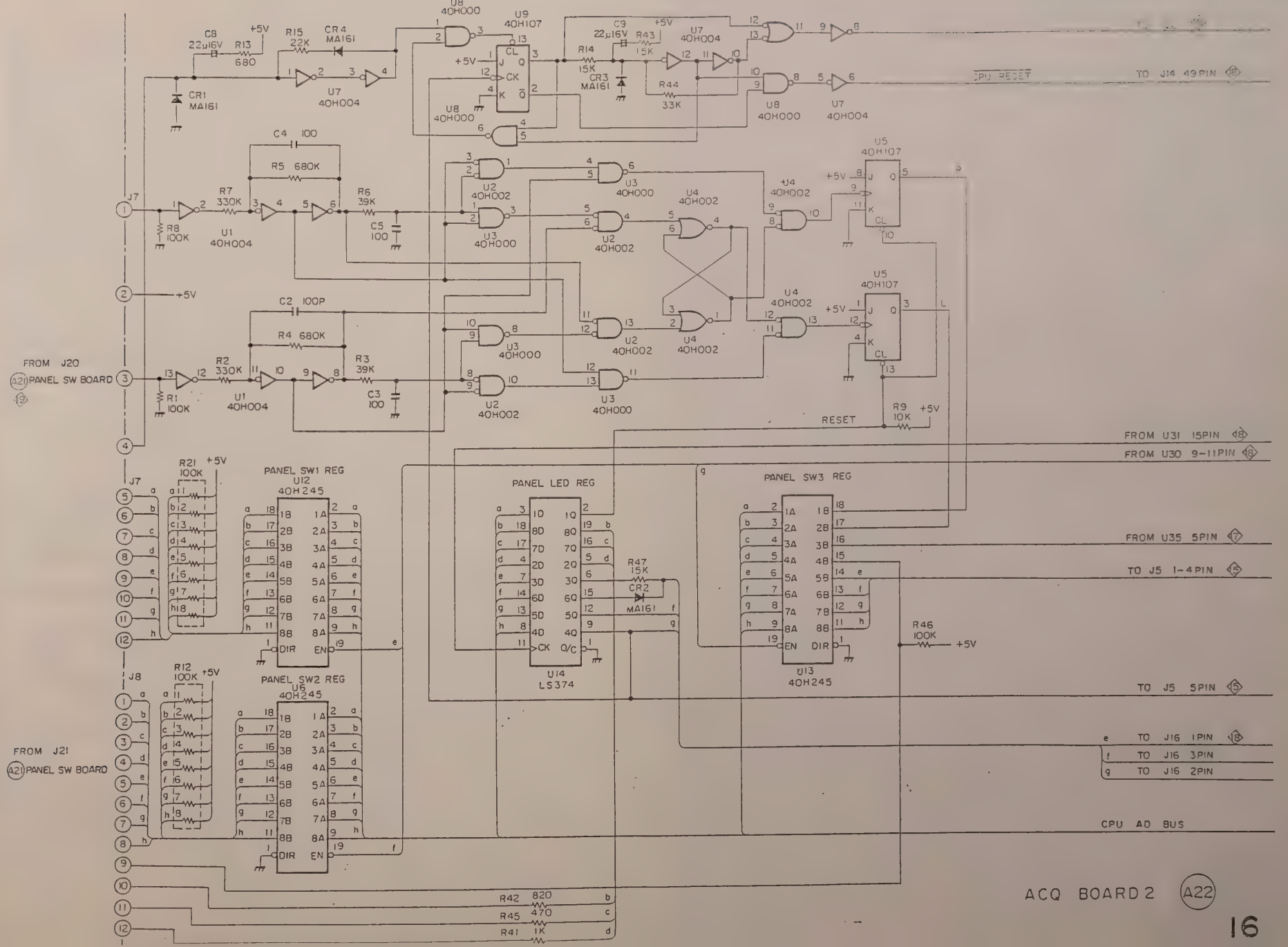
(A5) - (6)
(A13)
(A16)
POWER SUPPLY (A12) - (2)

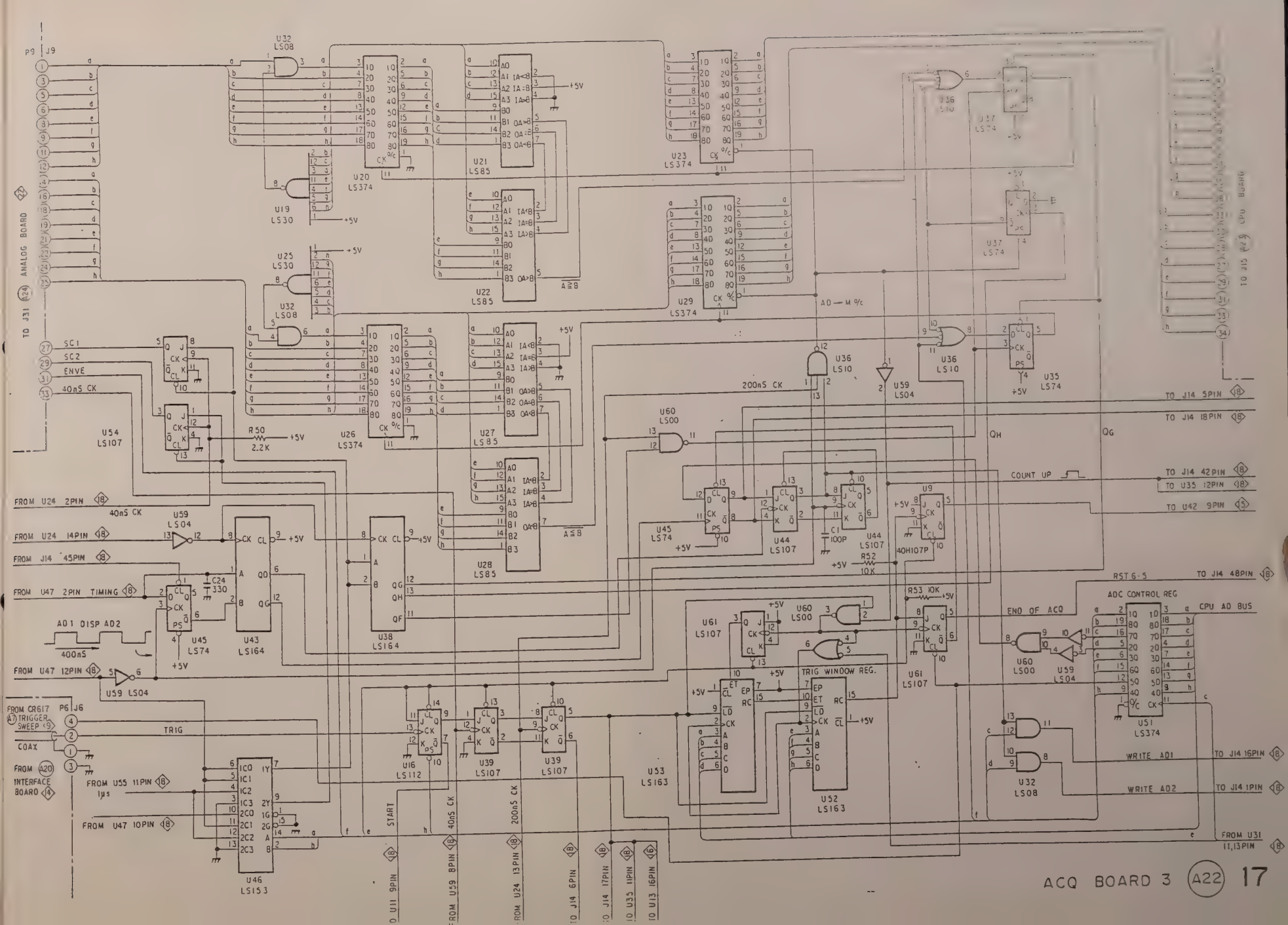

TO (8) S311
J40
R8 470
L9 100u
C9 10
R9 750
C10 390
CR1 MA150
Q1 2SC828ARS
R2 100
R10 5.1K
R19 130
R1 330K
C1 1uF 50V
R3 3.9K
R4 47K
Q2 2SA564ARS
R20 2K
R6 2.2K
C3 1uF 50V
R18 1K
R14 3K
Q4 2SC1359
R12 200
R13 910
Q5 2SA564A-RS
R22 1K
R24 470
R16 5.1K
R17 2.2K
R21 10K
Q3 2SC-1359
R7 2K
C2 1uF 50V
R11 47K
R15 1K
R23 12K
C8 0.01
C6 0.01
R28 12K
C7 0.01
R27 33K
U3 LS123
U2 LS107
TO (8) R579
TO (8) J604 10PIN
TO (8) R567
R25 470
C26 330
R26 2K
R35 9.1K
R33 820
J47
FROM J981 (A12) POWER
C17 10uF 16V
C11 10uF 16V
C16 10uF 16V
C15 .001
C14 10uF 16V
C18 10uF 16V
U1 LS155
R56 47K
U15 μPC251C
TRIG SEL
R57 47K
R54 100K
R55 100K
U14 LS03
R53 1K
R51 10K
Q24 2SA564-RS
CR2 MA161
R52 10K
R50 10K
AUTO
SINGLE
DIGITAL ON=H
Q60 2SC1359
CR60 MA150
R60 330
TRIG OUT
COAX
TO J6 (A22) ACQ BOARD (17)
R59 2.2K
B TRIG
A TRIG
FROM (A7) TRIG SWEEP BOARD (8)
J46
INTEN
TO R638 (A7) TRIGGER SWEEP (9)
TO (A9) H MODE BOARD (3)
FROM J713 1PIN (A9) H MODE BOARD (9)
FROM J713 2PIN (9)
J48
(A22) ACQ BOARD (15)
H MODE A
H MODE B
From U14 19PIN
FROM J401 (A4) V MODE
CH 1
CH 2
ADD
CHOP
ALT
DUAL
J42
R40 22K
R43 22K
R32 22K
R30 22K
R31 22K
NORM
FROM 7 J500
J45
R41 22K
R42 22K
U12 LS153
U11 LS153
C12 0.01
C13 0.01
U13 LS157
R38 2.2K
R58 3.3K
Q23 2SC1815-BL
C50 0.047
Q11 2SC1815-BL
R34 10K
X1 AE5349
CR3 MA161
TO J400 (A5) V SWITCHING (7)
J41
TO J800 9-10 PIN (A9) H OUT AMP
From R636 (A7) A & B SWEEP
From J35 5PIN (A24) ANALOG BOARD (25)
TRG 1
TRG 2
J43
R45 6.8K
R44 6.8K
R46 33K
R47 33K
Q22 2SA564A-RS
Q21 2SA564A-RS
TO J302 (A5) V.H AMP
A20
INTERFACE BOARD
A20 INTERFACE BOARD

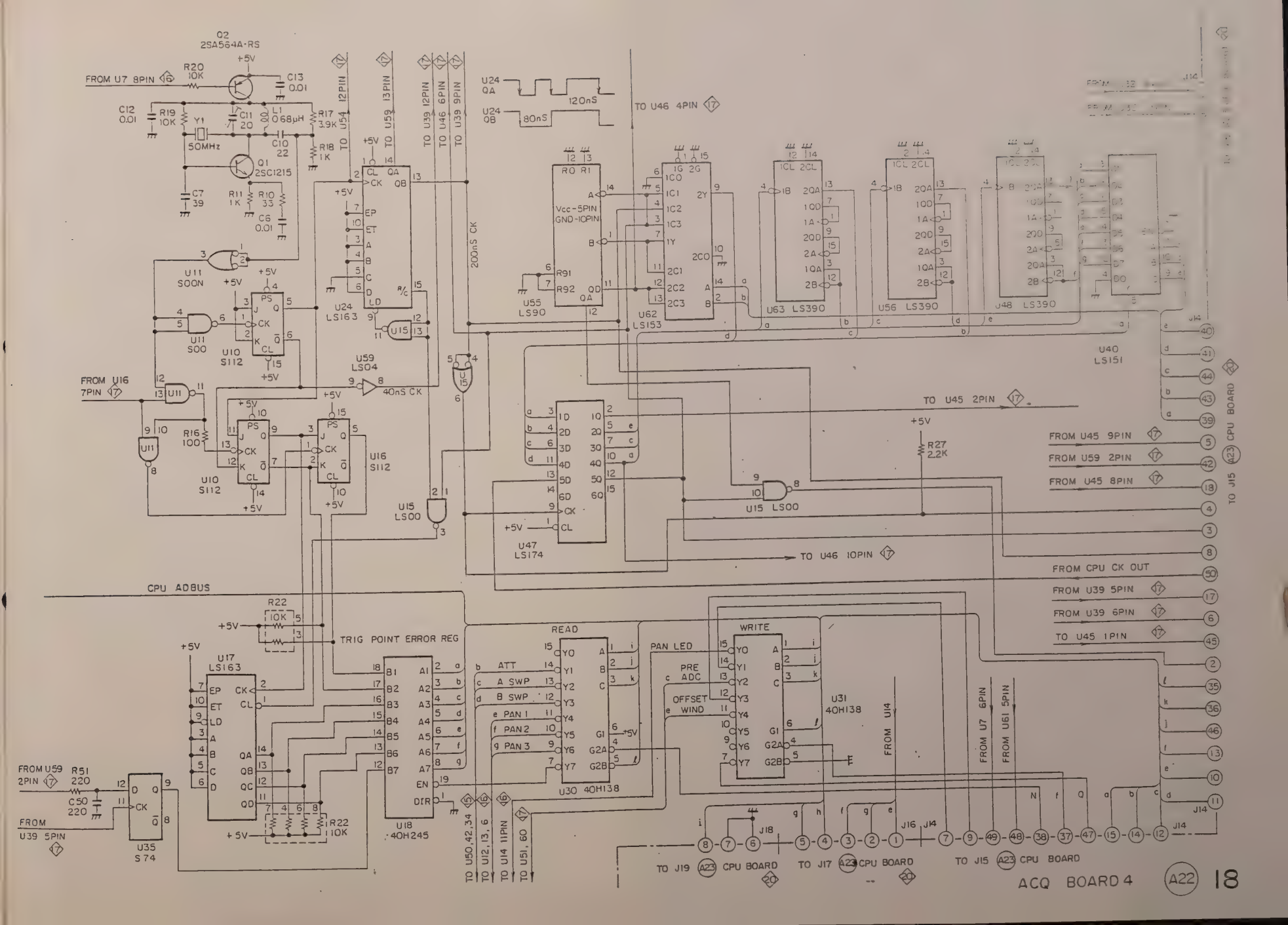
SWEEP (s/div)	0.1µS	0.2µS	0.5µS	1µS	2µS	5µS	10µS	20µS	50µS	0.1mS	0.2mS	0.5mS	1mS	2mS	5mS	10mS	20mS	50mS	0.1S	0.2S	0.5S
REGISTER (HEX)	1F	1E	1D	1B	1A	19	17	16	15	13	12	11	0F	0E	0D	0B	0A	09	07	06	05

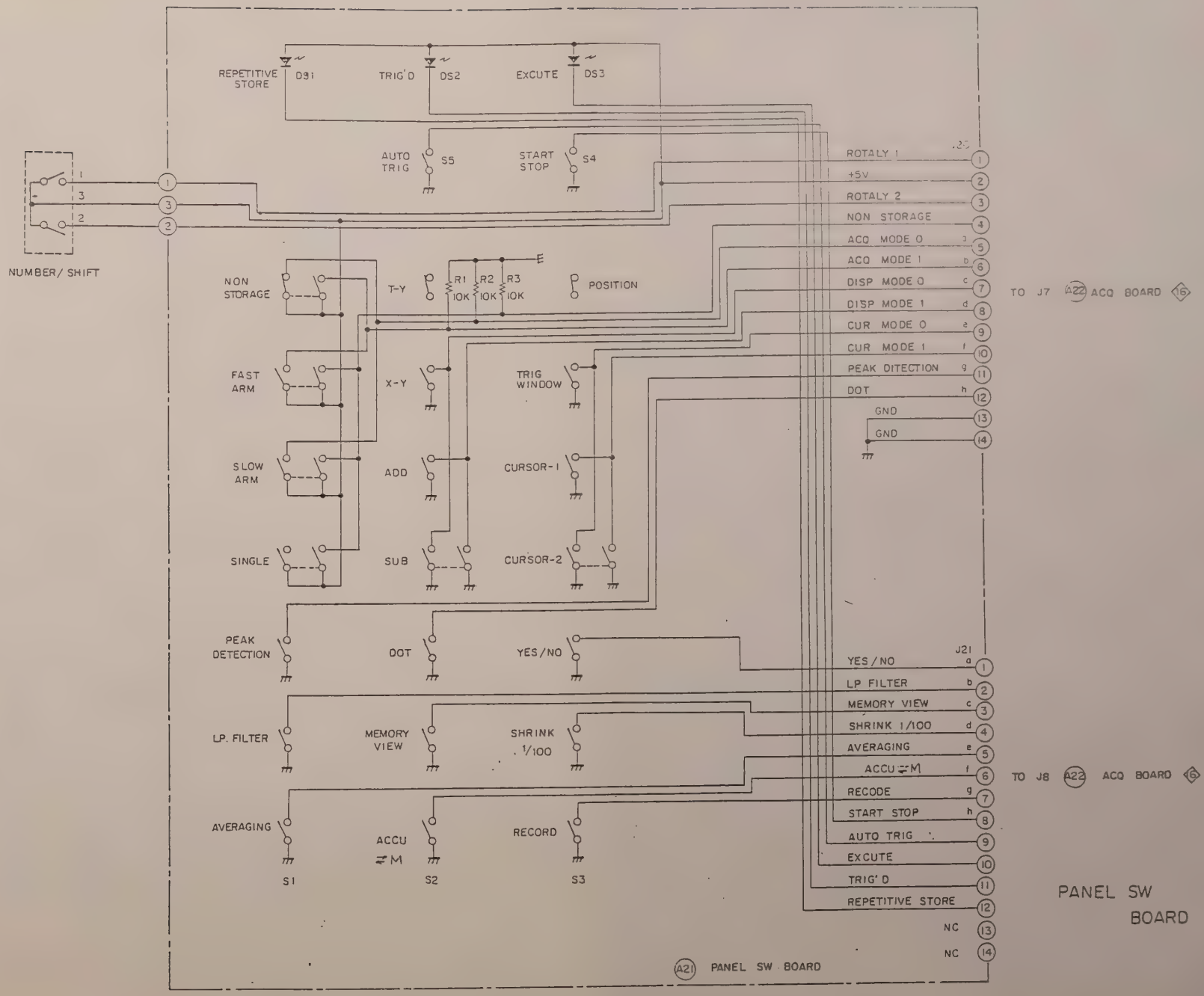
ATT VOLTS/div	2mV	5mV	10mV	20mV	50mV	0.1V	0.2V	0.5V	1V	2V
REGISTER CODE (HEX)	01	02	04	05	06	08	09	0A	0B	0C



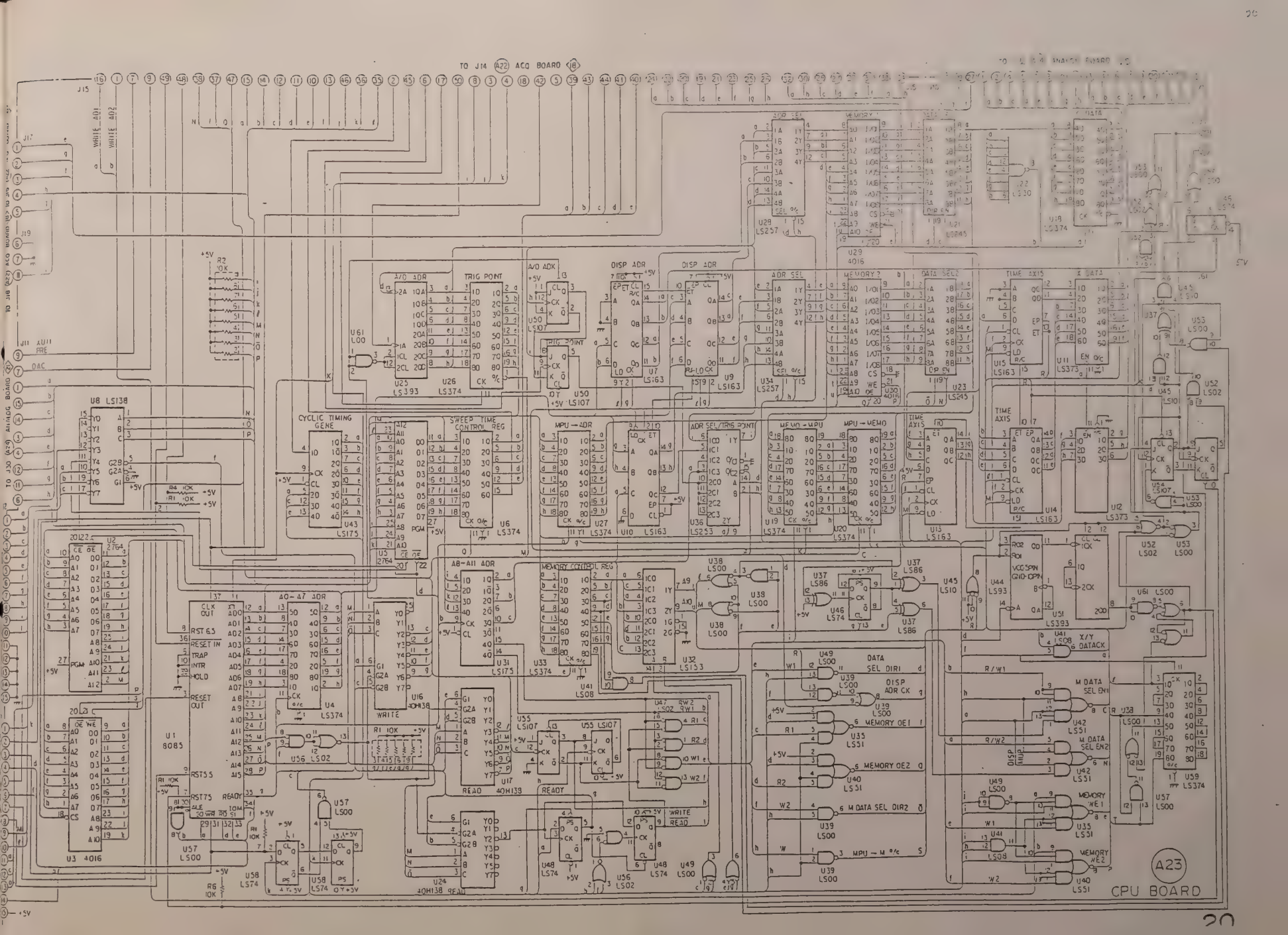

FROM J20
A21 PANEL SW BOARD
FROM J21
A21 PANEL SW BOARD
PANEL SW1 REG
U12
40H245
PANEL SW2 REG
U6
40H245
PANEL LED REG
U14
LS374
PANEL SW3 REG
U13
40H245
U1
40H004
U2
40H002
U3
40H000
U4
40H002
U5
40H107
U7
40H004
U8
40H000
U9
40H107
RESET
CPU RESET
TO J14 49PIN
FROM U31 15PIN
FROM U30 9-11PIN
FROM U35 5PIN
TO J5 1-4PIN
TO J5 5PIN
TO J16 1PIN
TO J16 3PIN
TO J16 2PIN
CPU AD BUS
ACQ BOARD 2
A22

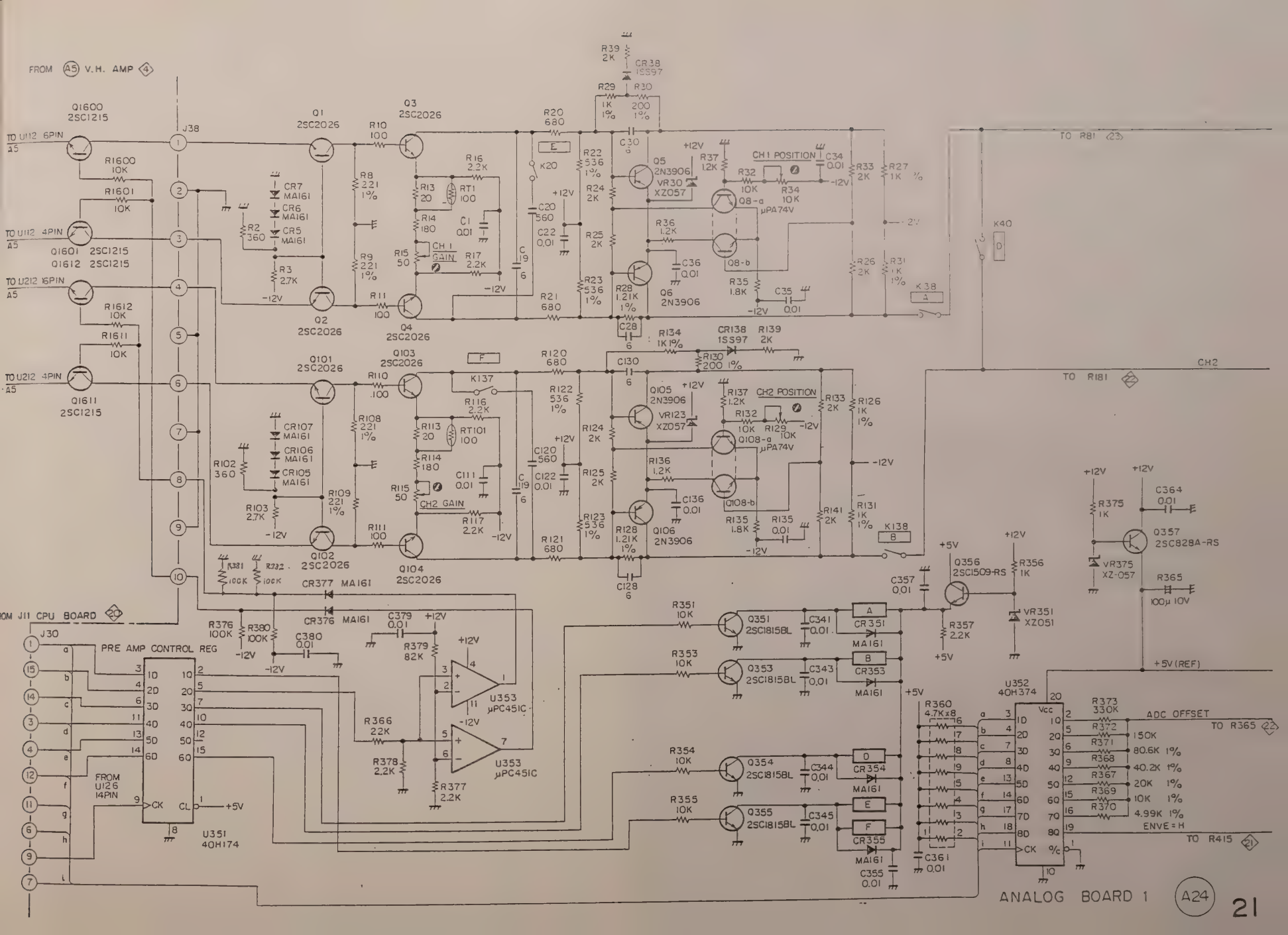

P9 J9
TO J31 (A24) ANALOG BOARD
TO J15 (A23) CPU BOARD
U32 LS08
U20 LS374
U21 LS85
U19 LS30
U23 LS374
U25 LS30
U22 LS85
U29 LS374
U36 LS10
U37 LS74
U35 LS74
U59 LS04
U60 LS00
U54 LS107
U26 LS374
U27 LS85
U28 LS85
U45 LS74
U44 LS107
U9 40H107P
U43 LS164
U38 LS164
U61 LS107
U52 LS163
U53 LS163
U51 LS374
U16 LS112
U39 LS107
U46 LS153
SC1
SC2
ENVE
40nS CK
200nS CK
R50 2.2K
R52 10K
R53 10K
C24 330
C1 100P
A01 DISP A02
400nS
FROM U24 2PIN
FROM U24 14PIN
FROM J14 45PIN
FROM U47 2PIN TIMING
FROM U47 12PIN
FROM CR617 P6 J6
TRIG
COAX
FROM A20 INTERFACE BOARD
FROM U55 11PIN 1μs
FROM U47 10PIN
START
TRIG WINDOW REG.
ADC CONTROL REG
END OF ACQ
COUNT UP
RST 6.5
WRITE A01
WRITE A02
CPU A0 BUS
TO J14 5PIN
TO J14 18PIN
TO J14 42PIN
TO U35 12PIN
TO U42 9PIN
TO J14 48PIN
TO J14 16PIN
TO J14 1PIN
FROM U31 11,13PIN
TO U11 9PIN
FROM U59 8PIN
FROM U24 13PIN
TO J14 6PIN
TO J14 17PIN
TO U35 11PIN
TO U13 16PIN


Q2
2SA564A-RS
FROM U7 8PIN
R20 10K
C13 0.01
C12 0.01
R19 10K
Y1 50MHz
C11 20
L1 0.68μH
R17 3.9K
C10 22
R18 1K
Q1 2SC1215
C7 39
R11 1K
R10 33
C6 0.01
U11 S00N
U10 S112
U24 LS163
U15 LS00
U59 LS04
40nS CK
200nS CK
U24 QA
120nS
U24 QB
80nS
TO U46 4PIN
U55 LS90
U62 LS153
U63 LS390
U56 LS390
U48 LS390
U40 LS151
FROM U16 7PIN
TO U45 2PIN
R27 2.2K
U47 LS174
TO U46 10PIN
FROM U45 9PIN
FROM U59 2PIN
FROM U45 8PIN
TO J15 A23 CPU BOARD
FROM CPU CK OUT
FROM U39 5PIN
FROM U39 6PIN
TO U45 1PIN
CPU ADBUS
R22 10K
TRIG POINT ERROR REG
U17 LS163
U18 40H245
READ
U30 40H138
ATT
A SWP
B SWP
PAN 1
PAN 2
PAN 3
PAN LED
PRE ADC
OFFSET WIND
WRITE
U31 40H138
FROM U14
FROM U7 6PIN
FROM U61 5PIN
FROM U59 2PIN
R51 220
C50 220
U35 S74
FROM U39 5PIN
TO U50,42,34
TO U12,13,6
TO U14 11PIN
TO U51, 60
J18
J16
J14
TO J19 A23 CPU BOARD
TO J17 A23 CPU BOARD
TO J15 A23 CPU BOARD
ACQ BOARD 4
A22
18

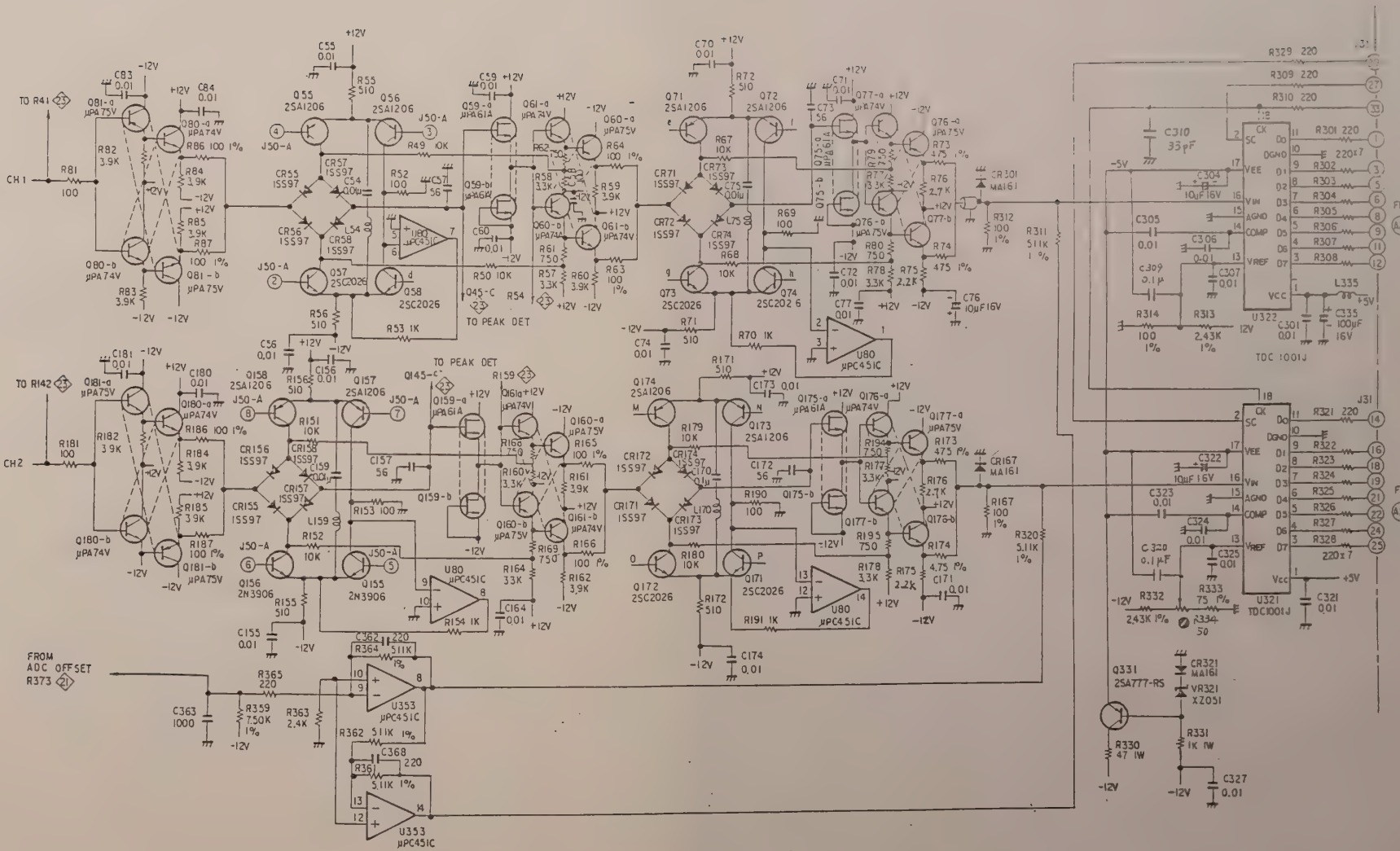


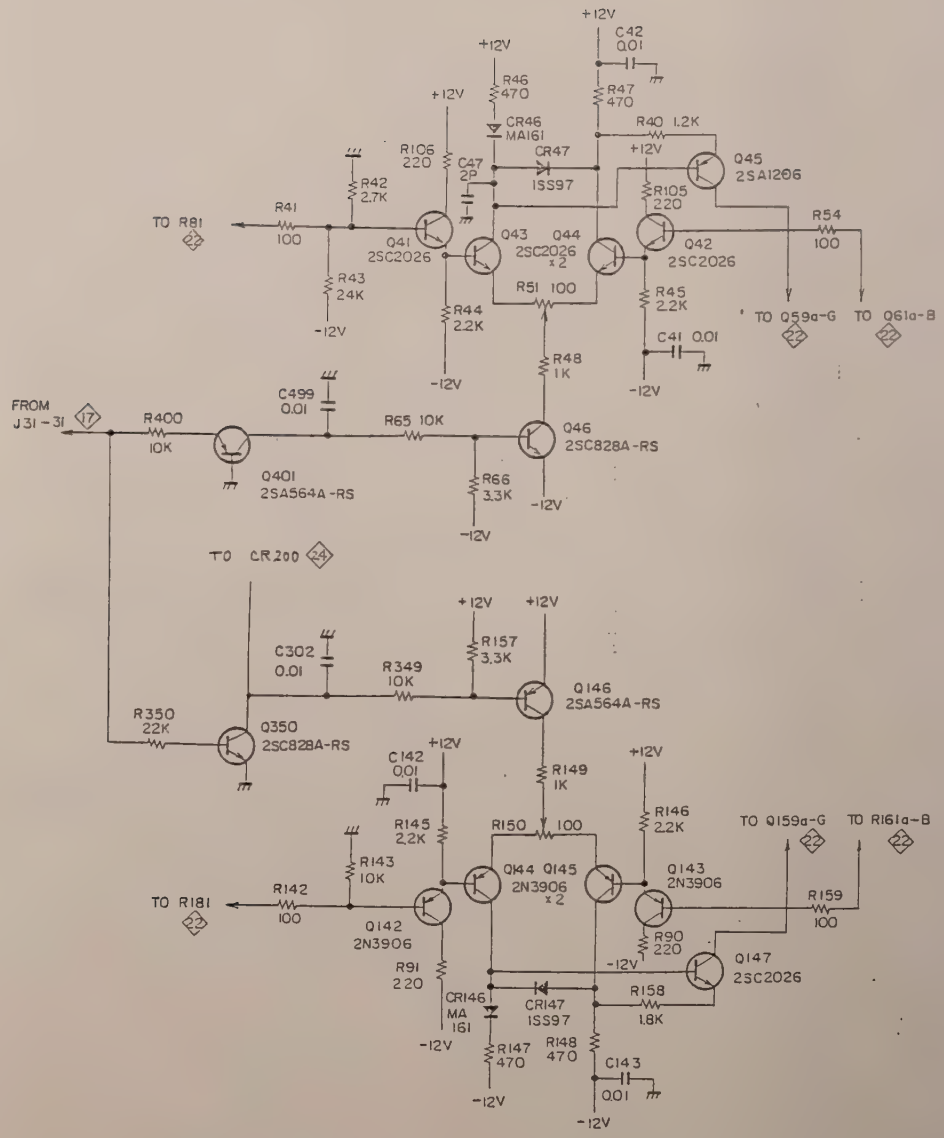
PANEL SW BOARD (A21)

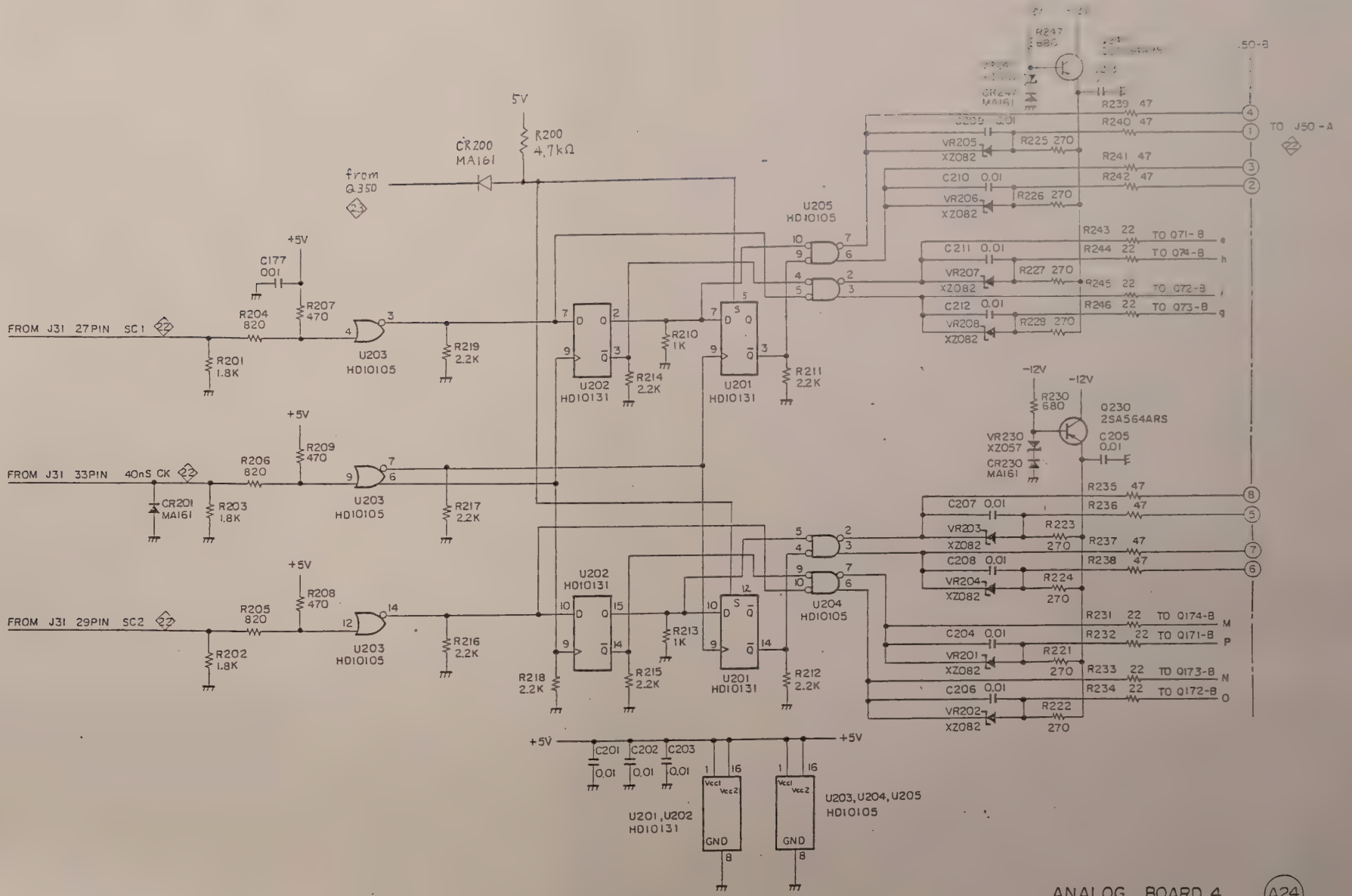

TO J14 (A22) ACQ BOARD (18)
TO J18 (A23) ANALOG BOARD (20)
TO J20 (A23) ANALOG BOARD (20)
WHITE A01
WHITE A02
DAC
A/D ADR
TRIG POINT
DISP ADR
ADR SEL
MEMORY
DATA SEL
TIME AXIS
X DATA
CYCLIC TIMING GENE
SWEEP TIME CONTROL REG
MPU → ADR
ADR SEL/TRIG POINT
MEMO → MPU
MPU → MEMO
A8-A11 ADR
A0-A7 ADR
MEMORY CONTROL REG
DATA SEL DIR
DISP ADR CK
M DATA SEL EN1
M DATA SEL EN2
MEMORY WE1
MEMORY WE2
MEMORY OE1
MEMORY OE2
M DATA SEL DIR1
M DATA SEL DIR2
MPU → M °/c
X/Y DATACK
R/W1
R/W2
W1
W2
READ
WRITE
READY
U1 8085
U2 2764
U3 4016
U4 LS374
U5 2764
U6 LS374
U8 LS138
U16 40H138
U17 40H139
U24 40H138 READ
U25 LS393
U26 LS374
U27 LS374
U28 LS257
U29 4016
U30 4016
U31 LS257
U32 LS153
U33 LS374
U36 LS253
U43 LS175
U50 LS107
U55 LS107
U61 L00
CPU BOARD
A23

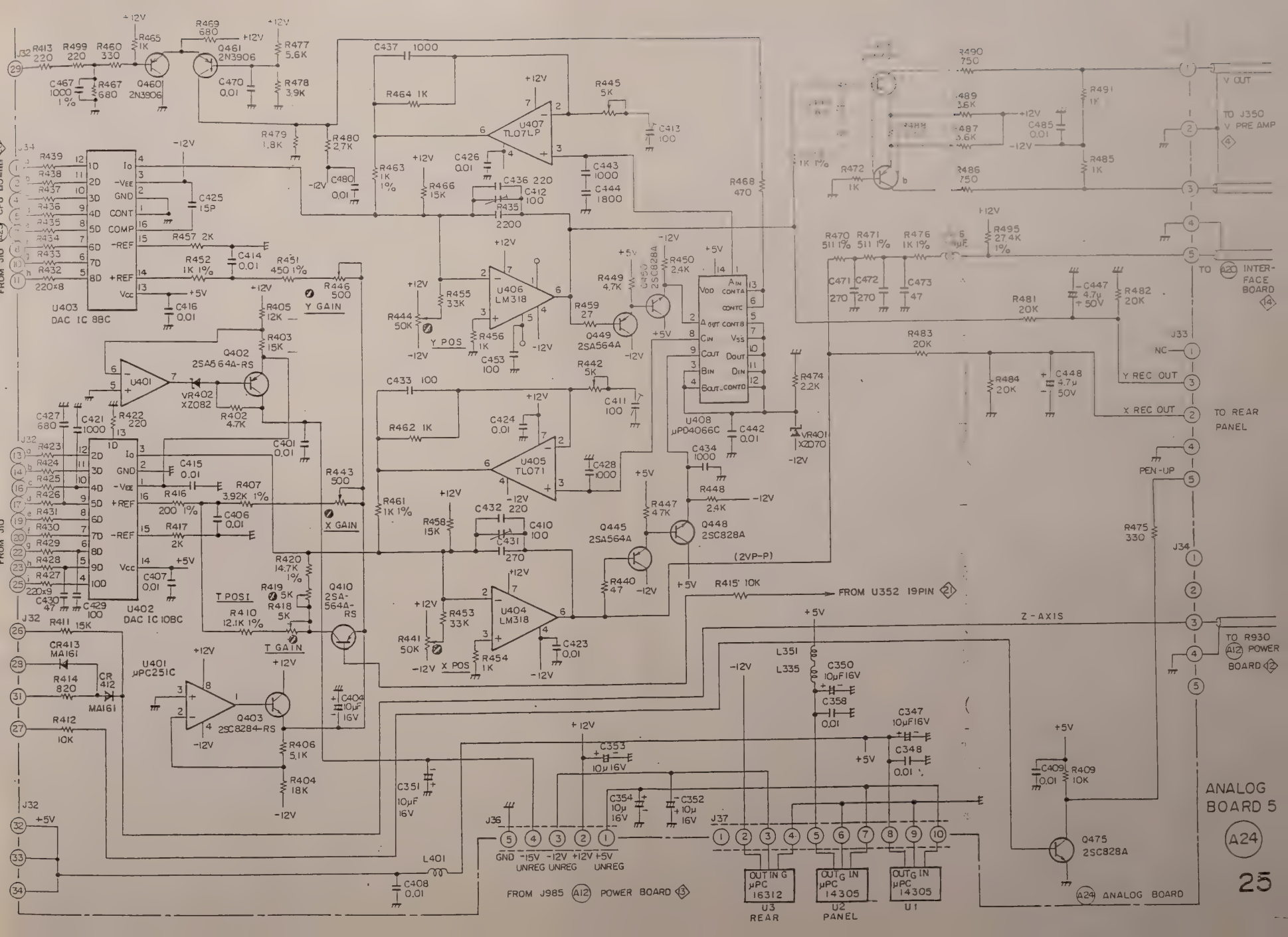


ANALOG BOARD 1 (A24)


CH 1
CH 2
TO R41
TO R142
TO PEAK DET
FROM ADC OFFSET R373
FROM J9 A22 ACQ BOARD
TDC 1001J
U322
U321
U80 µPC451C
U353 µPC451C
Q55 2SA1206
Q56 2SA1206
Q57 2SC2026
Q58 2SC2026
Q71 2SA1206
Q72 2SA1206
Q73 2SC2026
Q74 2SC2026
Q158 2SA1206
Q157 2SA1206
Q156 2N3906
Q155 2N3906
Q174 2SA1206
Q173 2SA1206
Q172 2SC2026
Q171 2SC2026
Q331 2SA777-RS
CR301 MA161
CR167 MA161
CR321 MA161
VR321 XZ051


+12V
C42 0.01
R46 470
R47 470
CR46 MA161
R40 1.2K
R105 220
C47 2P
CR47 1SS97
Q45 2SA1206
R42 2.7K
R41 100
TO R81
Q41 2SC2026
Q43 Q44 2SC2026 x2
Q42 2SC2026
R54 100
R43 24K
R51 100
R45 2.2K
R44 2.2K
TO Q59a-G
TO Q61a-B
C41 0.01
R48 1K
-12V
FROM J31-31
C499 0.01
R400 10K
R65 10K
Q46 2SC828A-RS
Q401 2SA564A-RS
R66 3.3K
TO CR200
C302 0.01
R157 3.3K
R349 10K
Q146 2SA564A-RS
R350 22K
Q350 2SC828A-RS
C142 0.01
R149 1K
R145 2.2K
R150 100
R146 2.2K
TO Q159a-G
TO R161a-B
R143 10K
Q144 Q145 2N3906 x2
Q143 2N3906
TO R181
R142 100
Q142 2N3906
R159 100
R90 220
Q147 2SC2026
R91 220
CR146 MA 161
CR147 1SS97
R158 1.8K
R147 470
R148 470
C143 0.01


5V
R200
4.7kΩ
CR200
MA161
from
Q350
+5V
C177
001
R204
820
R207
470
FROM J31 27PIN SC1
R201
1.8K
U203
HD10105
R219
2.2K
U202
HD10131
R210
1K
R214
2.2K
U201
HD10131
R211
2.2K
U205
HD10105
R247
680
R239 47
C209 0.01
R240 47
VR205
XZ082
R225 270
R241 47
C210 0.01
R242 47
VR206
XZ082
R226 270
TO J50-A
R243 22
TO 071-B
C211 0.01
R244 22
TO 074-B
VR207
XZ082
R227 270
R245 22
TO 072-B
C212 0.01
R246 22
TO 073-B
VR208
XZ082
R228 270
-12V
R230
680
Q230
2SA564ARS
VR230
XZ057
C205
0.01
CR230
MA161
+5V
R209
470
R206
820
FROM J31 33PIN 40nS CK
CR201
MA161
R203
1.8K
U203
HD10105
R217
2.2K
R235 47
C207 0.01
R236 47
VR203
XZ082
R223
270
R237 47
C208 0.01
R238 47
VR204
XZ082
R224
270
U204
HD10105
+5V
R208
470
R205
820
FROM J31 29PIN SC2
R202
1.8K
U203
HD10105
R216
2.2K
U202
HD10131
R213
1K
R218
2.2K
R215
2.2K
U201
HD10131
R212
2.2K
R231 22
TO 0174-B
C204 0.01
R232 22
TO 0171-B
VR201
XZ082
R221
270
R233 22
TO 0173-B
C206 0.01
R234 22
TO 0172-B
VR202
XZ082
R222
270
+5V
C201
0.01
C202
0.01
C203
0.01
+5V
U201,U202
HD10131
U203,U204,U205
HD10105
Vcc1
Vcc2
GND


U403 DAC IC 88C
U402 DAC IC 108C
U401 μPC251C
U407 TL07LP
U406 LM318
U405 TL071
U404 LM318
U408 μPD4066C
Q461 2N3906
Q460 2N3906
Q402 2SA664A-RS
Q449 2SA564A
Q445 2SA564A
Q448 2SC828A
Q410 2SA-564A-RS
Q403 2SC828A-RS
Q475 2SC828A
Y GAIN
X GAIN
Y POS
X POS
T POSI
T GAIN
Z-AXIS
(2VP-P)
FROM U352 19PIN
TO J350 V PRE AMP
TO INTERFACE BOARD
TO REAR PANEL
Y REC OUT
X REC OUT
PEN-UP
TO R930 POWER BOARD
FROM J985 POWER BOARD
GND -15V -12V +12V +5V UNREG UNREG UNREG
OUTPUT μPC 16312 U3 REAR
OUTPUT μPC 14305 U2 PANEL
OUTPUT μPC 14305 U1
ANALOG BOARD 5
A24
25

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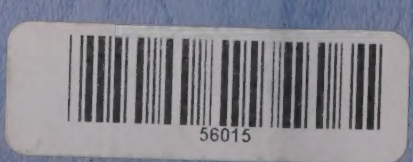
56015